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A RESEARCH MILESTONE

Nilevar*

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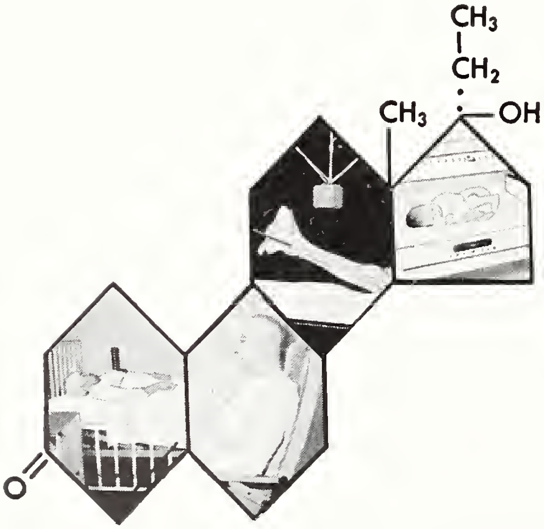

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SEARLE

Adolescent Gynecology*

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The general characteristics of vaginal and vulvar irritations or infections have undergone a marked change. The widespread use of new forms of contraception, feminine hygiene, antibiotics, soaps and detergents, the increased tensions of present-day living and the synthetics or dyes used in clothing all contribute their definite share to these disturbing conditions. The spectacular effective treatment of the gonococcus even in our clinic practice still leaves vaginal and vulvar infections or irritations as one of the most common and distressing symptoms in the gynecological or obstetrical patient.

Dame Nature has set up a very efficient series of road blocks to the introduction or ascent of infection from the vulva to the vagina and upper reaches of the pelvic structures. Sometimes I fear we are apt to overlook the fact that the female genital tract opens directly into the free peritoneal cavity. Nature herself regularly breaches these normal defenses during the main physiological functions of the generative tract, namely, menstruation, coitus and reproduction. When the apposition of the moist surfaces of the highly resistant membranes of the genital tract are separated or the constricted areas enlarged, free access of bacteria or flagellates becomes possible. The average acidity pH 4.0 to 5.0[1],[8] or hydrogen ion concentration of the vaginal moisture is probably inimical to the growth of foreign pathogens. When this normal balance is disturbed by tissue injury, chemicals, retained alkaline blood and mucous, foreign bodies, lowered levels of general body resistance and repeated insults to new strains of infection, a process of disturbed physiology is initiated and symptoms are produced.

Most authors writing on this subject stress the high resistance of the pelvic organs and peritoneum. This increased resistance may well be due to the changing conditions and opportunities for infection that these areas are constantly subjected to and the anatomical or physiological functions that have been selectively developed to combat them. The warmth, moisture, change in acidity, cell débris including blood, form an ideal culture media for the growth of saprophytic or pathogenic organisms. The wonder of it is that infections are not more severe and constantly present than they are.

Investigators to date have not proved without question the sources and methods of primary or secondary infections, with the possible exception of gonorrhea. There can, however, be little question that many of the other types are most frequently also transmitted by sexual contact and its associated procedures. It is vitally important that we keep this fact in mind during the primary diagnostic investigation and to insure against the reoccurrences that so commonly harass the patient and her physician. The peak of vaginal infections closely parallels the peak of sexual activity. The undisturbed anatomical barriers of the virgin may account for the relative infrequency of vaginitis in the premenstrual child, because at this time the vaginal secretions are more alkaline, vaginal glycogen is absent or at a low ebb and Doderleins bacilli are usually sparse or few in number. As puberty approaches, Doderlein bacilli appear in the vaginal secretion and the acidity rises from pH 5.5 to 6.0 to the adult values of 4.0 to 5.0. Theoretically this latter level is due to the activity of the lactobacillus on the glycogen or glucose of the vaginal cells and produces maximal protection for the vaginal tract. Many observers have expressed doubt that this is true. Certainly it may be said that when this normal level of acidity is reached and especially if there is a high proportion of Doderlein present there is rarely any pathological condition found. Doubt has also been thrown on the assumption that the elevated estrogens are responsible for the increased glycogen and bacterial levels. It has been repeatedly noted that the high estrogenic levels found in pregnancy are usually accompanied by a luxuriant growth of the lacto bacillus. It has been our experience, that when this quantity is increased and prolonged during the course of pregnancy, therapy is more effective or spontaneous cure may occur.

Accompanying the change in the physiology of the prepubertal vagina, an increased vaginal secretion occurs. This normal increase may greatly disturb the parents and the child. Explanation by the physician and adequate local cleanliness will usually be sufficient to allay these fears. In fact, increased cleanliness of the child's vulvar and rectal regions will improve or cure the majority of nonspecific infections in the child. The universal teaching of protection of the adolescent genitalia predisposes to the uncleanliness of this area. Irritating soaps, talcum powder or ointments may be a contributory or the inciting cause of vulvar irritation of all females, and is especially true in the tender skins of blonds, red heads and children. Dyestuffs and synthetic fibers, especially nylon, may cause intense irritation in certain susceptible individuals. Abnormal moisture, highly acid concentrated urine or the ammoniacal products of degeneration may intensify the effects of extraneous irritants and be responsible for maceration, fissuring and consequent pruritis.

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*Presented at the sixty-seventh annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 14-17, 1956.

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Vaginitis and accompanying vulvitis are rather rare in the child and virginal adolescent. In a recent report covering 1321 such private and student nurse patients we observed 73 such cases. In the group of 200 up to the age of 17 years seen in the office, we found:

trichomonas vaginalis	1
monilia	13
nonspecific	2

In the remainder comprised of 1121 student nurses:

trichomonas	16
monilia	13
nonspecific	28

In this latter group and in older private patients we have observed a high incidence of the use of the menstrual tampon, in those affected by nonspecific organisms. During the last four years we have removed all or a portion of an entire tampon from the vagina of 16 patients. One of these which we could date accurately was found in a nurse and had remained in the vagina three months. This low incidence of nonspecific and specific infections in this large group of prepubertal and virginal girls suggests that the higher incidence found in the sexually mature woman most probably is connected directly with sexual exposure, contraception or the control of menstrual blood. No gonorrheal infection was demonstrated in the above series.

The vaginal flora of the prepubertal child, after the eighth week of life, is very sparse and is usually composed of an occasional coccus, diphtheroid or coliform organism. The cellular content of the vaginal discharge is composed of cellular débris, an occasional leucocyte or epithelial cell carried in a watery secretion containing little or no mucous. This secretion closely resembles that found in the menopausal woman. When the proportional amounts of these constituents either cellular, bacterial or fluid are changed, we must be alert to the following possibilities. The approaching menarche, masturbation, nonspecific infections, foreign bodies, trichomonas, monilia, gonorrhea, cervical erosions or polypi, new growths of the upper genitals including the hormone-producing tumors, and those associated with or following the exanthemata.

The nonspecific infections, in most instances, respond quickly to cleanliness, improvement in general resistance, food, vitamins, small doses of thyroid or in rare instances, short courses of estrogenic hormone used locally or by mouth.

Foreign bodies are readily diagnosed by rectal examination and colposcopic exploration of the vaginal tract. Thinking of their possible presence is usually the prime essential in diagnosis. Removal under light anesthesia is promptly curative.

Trichomonas and monilia are rare in the virgin. Local treatments used in adults are very effective and reoccurrences are rare in our experience. Glycosuria, of course, predisposes to repeated yeast infection, therefore a test for sugar is essential in all patients afflicted with vulvar irritation or vaginal infection.

The local appearance of the vulva and vagina are, in the acute stage, quite characteristic in gonorrheal vaginitis and vulvitis. The reddened, edematous mucous membranes bathed in the creamy pus laden discharge is typical.

The gram stain is usually adequate for diagnosis but if there is doubt, cultures should be made. Large doses of procaine penicillin G intramuscularly 300,000 to 1,000,000 units for 2 to 3 days will generally produce cure. Patients allergic to penicillin can be treated with any of the tetracyclines or chloramphenicol. Subsequent examinations should be made to be certain of cure and a careful search for the primary source of infection should be made. It is usually wise also to examine the mother, if possible the father, brothers or sisters of the patient. The gonococcus is transmitted by contact either with the parents, other children or contaminated articles used in their care. Sex consciousness and curiosity comes very early in life and self exploration or children's games involving the genitals are common in all levels of society. We have recovered sperms from the vaginal secretion of a girl 7 years of age and another one at 11 years. Twenty years ago in our vulvovaginitis clinics in Rush Medical College in Chicago, approximately 50 per cent of all cases were gonorrheal. Today we see three to six cases per year.

The vaginal and vulvar infections which may complicate the acute general infectious diseases are, at least in the beginning, caused by the specific organisms which affect the individual as a whole. In the later stages, due to adhesions, stricture and lowered general resistance, secondary infection may occur. The most notable of these contagious infections are scarlet fever, diphtheria and pneumonia. The universal use of antitoxins and the antibiotics by parenteral or local use have so changed the physiology of the vaginal tract and its contained organisms that rapid growth of those not affected by the drug may multiply and for the first time produce symptoms of acute vaginitis. Long, Rakoff and Lannowski[2] report an increase from 13 per cent to 76 per cent in monilial infection following treatment of trichomonas vaginitis with suppositories containing terramycin. Aureomycin has been the worst offender in our experience. We have abandoned the use of local antibiotics in the treatment of vulvovaginitis. We do occasionally use the sulfa vaginal creams in the adult patients for resistant nonspecific vaginitis or humophilus[3]. The individual sensitivity to the antibiotics may cause an intense local pruritis or dermatitis about the vulva or rectum. The usual course of the severe pruritis may last six to eight weeks and we have found little in the way of specific treatment. Partial symptomatic relief may be obtained with the antipruritic drugs such as aspirin, codein, calamine lotion with phenol or one of the common anesthetic or antihistaminic ointments or sprays.

The specific organisms causing vulvovaginitis in the menstruating woman are Trichomonas vaginalis, Candida albicans, gonococci, the newly described Hemophilis vaginalis and the fusioform spirochetal organisms.

In almost all of the reported series, Trichomonas has been the most common infestation. The incidence of vaginal infection will naturally vary with the type of patient examined. They occur about twice as frequently in the colored as in the white. I suspect that the high incidence of "pus tubes" in the colored is a reflection of this fact rather than the high incidence of gonorrhea in the Negro patient. Trusell[4] in his table of incidence quotes studies varying from 8.6 per cent in Japanese women in cold weather (Tamera) to 100 per cent in gonorrheal suspects observed by Assinder.

Many patients harbor Trichomonas without complaint of symptoms. However, many of this latter group, if closely questioned, may recall at some date preceding the examination a period of increased vaginal discharge, pruritis, irregular vaginal bleeding or symptoms of dysuria or frequency. The onset of typical symptoms is usually acute and most frequently appear following the cessation of the menstrual period.

The frothy, bubbly discharge which is usually profuse in Trichomoniasis has a greenish cast and a characteristic disagreeable odor. It is extremely irritating to the vulvar and perineal skin. This is a reflection of the intense irritation also found in the vaginal mucous membrane which is frequently speckled with the minute petechial hemorrhagic spots, particularly of the anterior and posterior vaginal fornices and which has led to the same strawberry vagina. Biopsy studies have shown these areas to be minute submucosal abscesses in which the typical diplostreptococci were found on stained preparations. Some observers believe that these symbiotic organisms, rather than the flagellates, produce the clinical symptoms.

In our experience, the incidence of vaginal infection with monilia has increased during the last few years. This increase, I suspect, may well be due in part to the widespread use of the antibiotics. Antibiotics, as you know, are now prescribed for everything from a simple nasal or throat irritation to the more serious generalized infection. These drugs change the local conditions in the vagina and allow the monilia already present to increase their growth or predispose to primary infection. Carter, Ross and Thomas report 294 variations of mycoses affecting the vulva and vagina. They and other observers are agreed that in the vast majority of instances, only three or four strains are common and produce symptoms. Carter[5] and his co-workers point out that yeasts are found more frequently in the colored race, and pregnancy further increased the incidence in their studies. These authors found that monilia Stellatoidia (closely related species) was the most frequent organism found in the pregnant patient, while candida albicans occurred more frequently in the gynecological group. The genus cryptococcus came third in frequency and saccromyces, rare and a relatively unimportant monilia. Yeast like organisms, have been reported in approximately one-third of all patients examined carefully for their presence. The acute onset of pruritis, local congestion, dyspareunia, backache, bladder and bowel symptoms or those of bearing down are often found in procedentia. They not only make the patient extremely uncomfortable but may confuse the examiner as to the true etiology of the clinical picture. This is especially true, as it also is in Trichomonas vaginitis, when menorrhagia or metrorrhagia accompanies the infection, and major procedures, including surgery, may be undertaken to cure the condition. It is a well-established fact that vaginal infection may cause changes in the cervical cytology that may be interpreted as carcinoma *in situ*. Cauterization, amputation, conization and even hysterectomy are not infrequently advised in our area, when simple cure of the vaginal infection would suffice. Metrorrhagia, or notable post menopause vaginal bleeding, I find can be permanently cured in many instances by eradicating infections of the vagina. By the same token, surgical procedures undertaken in the presence of vaginal infection will increase the postoperative morbidity, and I believe the mortality. Therefore, a careful evaluation of the vaginal flora should be made before gynecological surgical procedures or hysterosalpinography are undertaken.

The presence of the fusiform or spirillar infestation are not uncommon but occur usually in symbiosis with any of the other forms of vaginal infection. Their corkscrew-like motions across the microscopic field are as characteristic as are the jumpy, turning, movements of the flagellates, and in the stained slide, the spirochaetal form is very evident. Treatment of the primary infections is usually sufficient for cure. The arsenicals seem to be effective and penicillin is specific.

TREATMENT

In our experience, trichomonas or yeast vaginitis may be permanently cured in 75 per cent of patients by any of the new used standard forms of treatment. The remaining 25 per cent are subject to recurrence and will persist until the secondary focus of reinfection is found and treated. During the last ten years, we have been fortunate in having friends practicing the genito-urinary specialty who gradually become interested in bladder and prostatic infection with trichomonas and during the last year with monilia. Most of our recurrent vaginal infections are now well, following the combined efforts in diagnosis and treatment.

The characteristic lesions in the female urinary tract usually are some degree of acute or chronic urethritis and trigonitis. That caused by the trichomonas is an edema and not infrequently associated with the petechial hemorrhages found so commonly in the vagina. The pathological changes produced by monilia are similar to those of thrush and frequently more pronounced than those caused by trichomonas. Both infections may be present in the same individual.

MONILIA

Total patients examined by G. U. Service		36
Patients not cystoscoped	1	
Patients cystoscoped	35	
	36	
a. gross mucosal changes (19 of these with proved yeast in urine)	26	
b. no gross mucosal changes (4 of these with proved yeast in urine)	9	
% of bladder involvement (proved)		64%
Total number of patients with monilia in urine (with or without parasites)	5	

TRICHOMONAS

Total patients examined by G. U. Service		72
Patients not cystoscoped	6	
Patients cystoscoped	66	
	72	
a. gross mucosal changes (28 of these with parasites in urine)	49	
b. no gross mucosal changes (1 of these with parasites in urine)	17	
% of proved bladder involvement		50%

Treatment:
Instillations biweekly gentian violet 1-10,000
Pyridium 2 grains each day.

Dr. Hugo Baum and the author[8] were able to demonstrate by slide or culture trichomonas from the bladder of 40 of 196 women harboring the flagellate in the vagina. These organisms were found in the last portion of catheterized urine, spun briefly in a centrifuge and the sediment immediately examined with the low-power objective, cultured in proper media, or identified in the stained smear. We do not believe that the identification of the organism or its treatment in the urethra, bladder or prostate are as effective as they are in the vagina. Further interest and experience with proper therapeutic agents are urgent. These vaginal organisms may be the unrecognized cause of many of the acute or chronic cystitis pictures we are confronted with and the basic cause of the yet unexplained cause of chronic prostatitis. The recent reports of an oral trichomonicide, tritheon[9],[10],[11], offers promise that it or some similar chemical substance may soon be available that will effectively treat all pelvic foci simultaneously.

In our local vaginal treatments, we have returned to the good old standbys such as silver picrate suppositories one grain, or floraquin, aci jel and lactic acid douches for trichomonas. Local vaginal applications of 1 per cent gentian violet to the point of tolerance, proprion jell and iodine or lactic acid douches (to normal vaginal acidity) for monilia. We have seen vulvar ulceration resembling carcinomatous change following the prolonged use of gentian jelly or solution. If infection recurs within the year following initiation of treatment, immediate search for secondary foci of infection is begun, beginning with the patient's bladder, secondly the husband, including the bladder and prostate, and followed by a progressive elimination of other sources mentioned in this paper and the literature.

We might summarize this long and rambling discussion, based on 30 years of interested observation and study of vulvovaginitis in the following way.

1. The best treatment of vulvovaginitis, like any other medical condition, must be based on accurate diagnosis of the causative agent.

2. The diagnostic procedures should be undertaken by the study of the secretion from the affected parts. Therefore, the use of medications including douches should not have been used for at least two to three days preceding the diagnostic procedure.

3. The secretion should be obtained by clean unlubricated instruments and immediately transferred to a microscopic slide or appropriate culture media.

4. Careful attention to the character, odor, color and consistency of the secretion. Appearance of the local parts may indicate the direction in which the most careful search should be made.

5. Prompt microscopic examination, before chilling or drying has occurred of the undiluted secretion by low-power scanning of the field. This short time interval requires the examiner to be cognizant of the procedures involved or to have competent technical help available at the time. Distant laboratories are not conducive to best results.

6. Subsequent dilution of the secretion if necessary with normal saline or the addition, when identification is indefinite, of contrast methods such as darkfield illumination, brilliant cresyl blue or other chemicals.

7. The use of Gram's differential stain in all slides under high power magnification. Trichomonas, monilia, and the gonococcus may occur in the same specimen.

8. Repeated examination of the secretion, preferably immediately following a menstrual period, and cessation of treatment for 48 hours, if the results have been inconclusive. Special staining as in trichomonas, or cultural microscopic checks if microscopic examination is inconclusive.

9. Coincidental examination of a freshly voided specimen of urine for flagellates or increased cellular or bacterial contents. Urine tested for glycosuria.

10. A critical awareness, during the examination of the patient, concerning her nutritional glandular and general body cleanliness status. Distinct evidences of specific skin irritations or evidences of sexual excesses or indiscretions.

11. Recapitulation by specific questioning to elicit the preceding or present symptoms caused by vaginal tract infection. Previous episodes of irritation of urinary tract, more than the normal amount of vaginal moisture, rectal irritation, metrorrhagia, previous cervical polypi strictures, prolapse symptoms, operations for pelvic infection, dyspareunia or abnormal vaginal odors. Patients are sometimes loath to discuss some of these symptoms unless specifically questioned.

12. An explanation to the patient of the etiological factors, average prognosis, avenues of reinfection and specific printed instructions of the procedure. Women have been made abnormally conscious of the implications of vaginal infection and due to their anxiety are frequently unable to remember verbal instructions. It should be made specifically clear to patients that although they may have been, or will be, reinfected by unprotected sexual contact, that only gonorrhea or syphilis are truly venereal. Repeated reassurance may be necessary to preserve marital happiness.

Recurrence should demand a careful search for treatment of the secondary foci of infection. In our experience, in order of frequency, these are urethra, bladder, husband, bowel (yeast) and the predisposing causes, physical metabolic and glandular disability.

(Here a movie in colors depicted the organisms causing some of the common types of vaginal infection).

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An Evaluation of a New Method for Preserving Corneas*

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The increased use of keratoplasty in the treatment of corneal disorders has emphasized the need for better methods of preserving corneas removed at death for later transplantation. Ideally such a method should permit the stockpiling of corneas for indefinite periods of time, permitting the use of corneas as suitable donor material whenever needed.

At the present time donor eyes are preserved in moist chambers at 4°C for not longer than 72 hours prior to use. Eyes preserved for longer than 72 hours at 4°C are not considered to be suitable donor material[1]. This fact necessitates a close correlation between the time of enucleation of the donor eye and the time of corneal transplantation —a correlation that is sometimes difficult to effect and which at times results in the loss of valuable donor material.

Recently Eastcott, Cross, Leigh and North reported the clinical uses of corneas preserved by freezing after glycerol soaking as donor material in both lamellar and partial penetrating keratoplasties[2]. They reported acceptable results in five lamellar and seven partial penetrating grafts. All of the lamellar grafts remained clear. Two of the full-thickness grafts remained clear, three remained partially clear and two became opaque. The length of storage time of the donor material seemed to have little effect on the final clarity of grafts; the time of storage varying from three days to nine months. They stated that they now routinely use frozen corneal material for lamellar grafts but were unable to advocate the routine use of frozen full-thickness grafts. Since then Iliff, Wood and Hollander have reported an additional instance of successful full-thickness transplantation of a frozen human cornea preserved in the same manner[3].

The successful use of donor corneas preserved in this manner indicates that this method of preservation may make available viable donor material over a longer period of time than has heretofore been possible. Because viability of donor material seems to be necessary for successful cornea transplantation, we have recently investigated the viability of rabbit corneas preserved in a similar manner. This work was done at the National Naval Medical Center and the Tissue Culture Section of the National Cancer Institute, National Institutes of Health, Bethesda, Maryland. It has been reported in detail elsewhere[1].

VIABILITY IN TISSUE CULTURE

Whole adult rabbit corneas were excised from freshly sacrificed animals. All corneas were removed within the limbus so that no conjunctival or scleral tissue were included. The corneas were then treated in one of four ways:

1. They were explanted directly into Carrel D 3.5 flasks in plasma clot under OC perforated cellophane. These were incubated at 37.5°C with horse serum tissue culture medium as a nutrient substance.
2. The corneas were explanted in tissue culture as above after soaking for one hour in 15 per cent glycerol USP in either Earle's balanced saline or in Ringer's solution.
3. The corneas were explanted in tissue culture as in No. 1 after having been frozen to —70°C, stored for one hour and then rapidly thawed to 38°C.
4. The corneas were explanted in tissue culture as in No. 1 after soaking in 15 per cent glycerol in Earle's balanced saline or Ringer's solution with subsequent freezing to —79°C, storage for one hour and thawing as described by Eastcott.

All cultures were read periodically and discarded at the end of 48 hours. Characteristically when migration was present, an initial sheet of epithelial cells was seen at the edge of the explant within 24 hours accompanied by lysis of the plasma clot. This was usually followed by a secondary wave of migration of spindle-shaped cells resembling corneal stormal cells.

The results of these experiments are shown in Table I. There was evidence of viability in all corneas which were freshly explanted. Sixty cultures of corneas explanted after soaking for one hour

TABLE I

Corneas	*Migration*	*No Migration*
Fresh	44	0
Soaked in 15% glycerol	60	0
Frozen without soaking	23	9
Frozen after soaking	72	0

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*Presented before the Section on Eye, Ear, Nose and Throat at the eighty-seventh annual meeting of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

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in 15 per cent glycerol all showed migration indicating that glycerol soaking has no deleterious effect on the viability of potential donor material. Of 32 cultures of corneas frozen without prior soaking in glycerol, nine failed to show any migration of cells within 48 hours. The remaining 23 cultures showed delayed migration and extensive cell vacuolization evidences of cell injury. These results suggest that sudden freezing may produce severe cell damage and reduce the viability of corneas preserved by freezing alone. Of 72 cultures of corneas soaked in 15 per cent glycerol, frozen with Eastcott's technique, stored for one hour and then thawed, all showed evidences of viability. These results indicate that corneas soaked in 15 per cent glycerol prior to freezing are protected from the harmful effects of freezing and routinely retain viability in tissue culture when stored for short periods of time.

SECONDARY CONSIDERATIONS

The favorable results obtained in tissue culture tests of viability of corneas preserved for only one hour raise secondary questions which we are as yet unable to answer fully.

The first of these is: "What is the maximum length of time after sacrifice that corneas may be removed, frozen and thawed, with a reasonable expectation of viability?" To date we have excised corneas from animals at hourly intervals for 12 hours after death. One-half of each cornea was placed directly in tissue culture. The other half was frozen as in No. 4, stored for one hour, thawed, and then placed in tissue culture. The results to date indicate that under these circumstances and within 12 hours of death, there is little difference in the behavior in tissue culture of fresh and frozen corneas stored for one hour.

The second question raised is: "How long may corneas frozen with Eastcott's technique be stored and still show viability in tissue culture after thawing?" Again, we are unable adequately to answer this question. We have explanted rabbit corneas which have been stored for many months after freezing by Eastcott's technique. The results of these studies are not complete but to date they indicate that corneas stored for not longer than 30 days behave in a manner similar to those stored for one hour. With corneas stored for longer than 30 days, there has been some evidence of diminishing viability.

The last question to follow is: "Are the results of these tests with experimental animals applicable to human material?" Again, this is a question which we are unable to answer. Our experience with human corneas handled in a similar manner is so limited that we are unable to offer parallel observations. However, in view of the results reported in the clinical use of human donor material preserved in a similar manner, one would not expect a great discrepancy in the behavior of human corneas in tissue culture and the actual behavior of rabbit corneas as here observed.

SUMMARY AND CONCLUSIONS

1. Eastcott's results in the use of glycerol frozen human donor material in keratoplasty are discussed.

2. The technique of glycerol freezing and storing of corneas is discussed.

3. The effects of glycerol freezing on the viability in tissue culture of rabbits' corneas are reviewed.

4. The influence of the length of time after death of removal of rabbits' corneas on subsequent viability in tissue culture is discussed.

5. The length of time for which glycerol-soaked frozen rabbits' corneas may be stored and still retain viability is discussed.

> I am not bound to win, but I am bound to be true—I am not bound to succeed, but I am bound to live up to what light I have—I must stand with anybody who stands right; stand with him while he is right and part with him when he goes wrong. —Lincoln

Intrinsic Factors Influencing the Heart Beat*

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WE HAVE BEEN accepting as actual facts, a plurality of assumptions taken for granted without the proper investigation, relative to the intrinsic factors influencing the heart beat. It is hoped that by contributing my little bit, future research will elevate this subject from mere postulation.

Before launching the ship of embryonic facts on the sea of normal and abnormal factors, it behooves me to refresh your memory on the mechanism of the heart beat. Originating in the cardiovascular centers of the central nervous system, the vagus and sympathetic nerves with their ganglia are the main channels through which the heart receives electric impulses. The fibers from the right vagus and the sympathetic nerves are distributed to the sino-auricular node of Keith-Flack, which is a specialized bit of tissue rich in nerve fibers and ganglia cells, located at the junction of the superior vena cava and right auricle. The left vagus and sympathetic nerves are distributed to the auricular-ventricular node and bundle of His. The vagus nerve acts to slow the heart and the sympathetic acts as an accelerator, so the balance between these two factors normally adjusts the heart rate. When the impulses pass from the sino-auricular node by way of the auricular musculature to the auricular-ventricular node, it is known as the P wave on the electrocardiogram and represents the depolarization of the auricular musculature. After reaching the auricular-ventricular node, the impulses are transmitted on to the bundle of His which divides into two branches on either side of the septum carrying impulses to the Purkinje fibers and thence to the ventricular muscle cells, this wave known as the QRS and representing the depolarization of the ventricles. The T wave represents the interval of repolarization and the time of contraction of the heart.

When a certain type of stimulus reaches the end of nerve fibers attached in the muscle cells the muscle is caused to contract. Because of the nerves ending in the upper part of the auricles the contraction travels downward to the ventricles and the delay at the AV node, called the P-R segment, allows time to fill the ventricles before they contract, which begins near the apex and travels upward to the auricles due to the manner of nerve distribution in the ventricular muscles.

After giving you a mental picture of the manner in which the heart beats, I will now attempt to shine a little light on the dark deep secret as to the source of the electrical energy causing the heart beat. There has been an accepted theory of synaptic transmission of nerve impulses from one neuron to another, and that the dendrites, cell body and neuraxon conduct nerve impulses by self-propagated bio-electrical circuits with a neurocellular current circulating continuously between opposite poles of a neuron. With this theory in mind, Robert Gesell, John Hunter and Richard Lillie at the University of Michigan, Department of Physiology, did some research on a dog by dissecting the phrenic nerve fibers to the largest ventral cervical root and attaching two pairs of electrodes. These electrodes were mounted through special equipment so that the electrical and functional activity of motor neurons could be studied with the aid of a DC amplifier. Two forms of activity were revealed: the slowly undulating waves of negativity in phase breathing and rapid spike potentials superimposed on the rising limb of negativity. The slowly undulating waves were found to spread by decrement in contrast to the decrementless spread of spike potentials. The slowly undulating potentials were therefore regarded as electronic in nature and were believed to reveal the existence of interpolar neurocellular currents. The spike potentials were regarded as action potentials produced by interpolar currents of the phrenic neuron. Increase of the electronic negativity during the inspiratory phase of breathing was associated with a corresponding increase of superimposed action potentials. After completion of many other tests they concluded that the theory of neurocellular generation of nerve impulses circumvents the difficulties of the theory of synaptic transmission of nerve impulses and constitutes a simple mechanism of neuron function compatible with established principles of neuraxon physiology.

The present conception as to the source of electricity is that an atom consists of a nucleus, positively charged, called the proton, around which are grouped ions, negatively charged, called electrons, each electron having a definite mass and carrying a fixed negative charge of electricity. Electrons are all essentially alike electrically and when a number of electrons are separated from the atoms an electric current is ready to flow through a conductor. My interest centers in the supply of electricity in living beings, which is caused by the action of oxygen within the being,

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*Read before the Delta Medical Society, October 12, 1955.

In the test previously mentioned on a living dog, there was an increase of the electronic negativity during the inspiratory phase of breathing and was associated with a corresponding increase of superimposed action potentials. The mechanical act of the inspiratory phase did not cause the increase of the electronic negativity, but the increase was produced by the freshly inhaled oxygen being attached to the iron in the haemoglobin, forming oxyhaemoglobin, and carried through the circulatory system to the proper centers for the generation of dynamic electricity. The blood from the mother supplies the unborn infant, who does not normally have respiratory action, with fresh oxyhaemoglobin.

The controlling factor regulating the heart beat is the constant supply of oxygen to the centers producing the electric impulses so as to have a continuous charge to the nerve fibers and ganglia cells in the specialized tissue of the sino-auricular, the auricular-ventricular nodes and the bundle of His. These fibers are so arranged that the dendrites from the nerve cells in the ganglia can only make contact when the ganglia are fully charged, then after a sufficient voltage is discharged into the heart muscles to cause contraction, the reduced pressure in the ganglion cells causes the dendrites to lose contact until they are recharged.

Normally the sino-auricular node initiates the impulses at a rate of from 50 to 120 per minute, but if it fails the auricular-ventricular node is capable of initiating impulses at a slower rate; if both fail the specialized tissue along the bundle of His may continue even at a slower rate. This slowing is due to the greater supply of nerves being from the vagus to the lower part of the heart.

While the sands of time are trickling through the hour glass filled with daily toil and punishment to the living body, many abnormal factors will be observed influencing the heart beats. I will not attempt to enumerate all, but will mention only the most important.

When there are diseases or abnormalities affecting the viscera, lungs, carotid sinuses, great veins and arteries, reflex stimuli are transmitted through the afferent fibers of the vagus nerve, the parasympathetic and sympathetic nervous system to the cardiovascular centers. The influence upon the heat beat depends upon the part involved.

The unbalanced electrolytes will take the oxygen from the blood to form new compounds, while with the anemias less oxygen can be taken by the blood, so having less oxygen the voltage is lower to the heart and is the cause of many dizzy, fainting spells.

If too much carbon monoxide is taken into the blood a molecular compound is formed with haemoglobin, leaving no attraction for oxygen, then the neurons soon fail to send impulses to the heart.

Cardiac arrythmias are caused by interference in the passage of impulses to and through the heart muscles, the kind and type depending on the place and amount of damage to the affected part.

Tachycardias are usually caused by an ectopic focus in the auricle, AV node or ventricle, retarding the action of the vagus over the accelerator nervous system.

COMMENT

While following the intrinsic factors over the rough and rugged road to the heart, beset by the ruffians of disease, I have endeavored to give you a summary of how the heart beats, with the source and what it takes to generate the electric stimuli, also the complicated factors involved during the process of a heart beat.

Mr. F. J. Lundy, group manager of the local telephone company, assisted me in making a test with citrated blood, by using a transistor detector and attaching two insulated wires that were connected to two plates, one zinc, the other carbon, immersed in the blood. At first a fine humming was heard, but when oxygen was forced into the blood the sound increased in volume and tone, indicating that the oxygen caused an electric current to be released by forcing the electrons to be separated from the atoms in the red blood. Another test was made by connecting one plate to the detector and the other to the brain of a chicken. No sound could be heard until a wire connected the spinal cord to the blood, then the sound produced was the same as with the two plates.

Someday, after the invention of an attachment for exhaust pipes with a chemical to neutralize carbon monoxide, we will see cardiac diseases revert to the status quo of the pre-motorized era.

Slowly, through all the universe, that temple of God is being built. Wherever, in any world, a soul, by free-willed obedience, catches the fire of God's likeness, it is set into the growing walls a living stone.

Experience with Piperazine in the Treatment of Enterobiasis (Oxyuriasis) - A Clinical Report

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Enterobiasis, familiar to most practicing physicians as oxyuriasis or pin-worm infections, is a cosmopolitan disease which occurs more frequently in the United States than is generally realized. In effect, it is the most prevalent helminthic disorder in the country, assuming endemic proportions in the warmer sections and constituting a therapeutic problem in some temperate areas as well. Enterobiasis may be characterized as a familial or group disease in which prominent auto- and cross-infection factors render permanent eradication of the parasite particularly difficult. Thus, for effective control of pinworm infestation, a treatment schedule must include prophylactic measures in addition to immediate medication with antihelminthics. In this manner, while drug therapy acts to eliminate or reduce the worm burden, good personal hygiene and clean living quarters serve to prevent re-infection.

An important consideration, basic to the treatment of enterobiasis, is the fact that all infected individuals in an affected communal group should be treated simultaneously. Generally, all members of a household except small infants are infected, some continuously and some intermittently. Hence, the treatment of one member who is known to have the disease will only temporarily be successful since he is likely to be reinfected through contact with a lightly infected, asymptomatic individual not suspected of harboring the parasite. If at all possible, all members of the household over one year of age should be placed on a similar therapeutic regimen despite lack of evidence of infection.

Prevention of auto- or cross-infection centers about a series of personal and environmental hygienic measures. Frequent washing of the hands, especially on rising and prior to eating or smoking, is most important. Finger nails should be kept short and well scrubbed. Whenever possible the patient should sleep alone during the period of drug therapy, and children in particular should sleep in garments which prevent contamination of as snug cotton pants. Cotton gloves may also be worn at night for added protection. Each individual in the group undergoing treatment should have his own toilet articles and linen, and under no circumstances are these to be exchanged with others in the group. Bed linen must not be shaken but rather carefully folded. Sterilization by boiling each morning is recommended for underclothing, nightwear, linen, towels, and table napkins. It is advisable to scrub toilet seats daily. Toys and other objects made of metal can be sterilized in a hot oven. All rooms, particularly the bedroom, must be kept well aired. Institution of a routine shower each morning during which the rectal and genital areas are thoroughly washed has also been found of value[1].

A number of therapeutic agents are available which vary in their ability to eliminate the parasite, Enterobius vermicularis. Each in turn has failed to win approval as a universal agent; objections to the use of papain, garlic, egressin, diphenan, gentian violet, oxytetracycline and the others are principally related to toxicity, difficulty of administration, efficacy against the pinworm, or cost of treatment. Recent clinical reports have demonstrated the value of piperazine against human enterobiasis[1],[10] because of the marked vulnerability of the adult worm to this agent. Piperazine exerts very slight effect on immature forms of the parasite[8]. Introduced medically for the treatment of uric acid calculi and gout many years ago, the drug was employed in doses as great as 10 grams with only mild side effects from which recovery was rapid once medication was discontinued.

In addition to this low order of toxicity for humans, piperazine appears to satisfy the other criteria for an effective oxyuricide and, in the early part of 1955 we undertook the treatment of cases of enterobiasis with a piperazine preparation*.

MATERIALS AND METHODS

A total of 172 individuals infected with Enterobius vermicularis were treated with piperazine in the course of this study. Of these patients, seen in private practice, 141 were children 13 years of age or younger and 31 were adults. A diagnosis the fingers with ova from the perianal region, such was established by means of the Scotch tape swab technique adopted by most clinicians for its simplicity, practicality and accuracy. A tape marketed as Scotch acetate film tape No. 800 was found most suitable for its crystal-clear transparency. Smears were made early in the morning before the suspected host was up and dressed. A three-inch loop of the tape was attached to the end of a tongue depressor or swab stick with the adhesive side outward. The sticky surface was pressed against the perianal folds of the skin to pick up any ova present. The Scotch tape was then smoothed down on a glass slide and examined microscopically; ova and worms could easily be identified.

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*Jayne's Liquid Vermifuge, the Centaur-Caldwell Division of Sterling Drug, Inc., New York.

Each patient was advised of the measures of personal hygiene and sanitation necessary to prevent reinfection or transmission of the parasite to others. Since all were ambulatory, however, they could not be supervised and there was no way of determining the extent of their precautionary routine once they left the office.

Piperazine was administered in a pleasant-tasting, orange-flavored syrup which contained the equivalent of 100 milligrams of piperazine hexahydrate per cubic centimeter. Dosage schedules were set up in accordance with body weight so that children weighing between 15 and 30 pounds were given one-half teaspoonful or 250 milligrams twice daily, children 31 to 60 pounds in weight were given one teaspoon or 500 milligrams twice daily, and children over 60 pounds in weight and adults were given two teaspoonsful or 1000 milligrams twice daily. The usual course of therapy extended over a period of 10 consecutive days. When, however, the infection was not completely eradicated within this time, it was considered relatively safe in view of the low incidence of toxic reactions to piperazine to prolong the treatment period. When necessary a second or third course of therapy was instituted at a higher dosage level. Additional Scotch tape smears made during therapy enabled us to determine the success of our initial regimen and to adjust schedules in keeping with individual response.

The great majority of the patients included in this study ingested, during a single course of therapy, a total of 2 to 6 ounces or 60 to 180 cubic centimeters of the piperazine preparation. The 35 children and 4 adults who required a second course and the 8 children who required a third course of treatment for elimination of the parasite were given total doses of 7 to 18 ounces or 210 to 540 cubic centimeters of the syrup and 16 to 18 ounces or 480 to 540 cubic centimeters, respectively. Two courses of drug therapy were generally carried out over 20 to 30 days while the occasional three-course schedule required 40 to 60 days for completion.

Our purpose was to effect as many cures as possible with piperazine. A minimum of two negative smears, post-treatment, were considered evidence of a cure.

RESULTS AND DISCUSSION

Of the 125 patients subjected to a single course of medication involving a total dose of 6 to 18 grams of piperazine, 125 were adjudged cured on the basis of two post-treatment smears which proved completely free of adult worms and ova. The remaining patient, a nine-year-old child, could only be treated intermittently because of chronic pyelonephritis and was still undergoing treatment at the time of this report. Similarly, thirty-eight of the 39 individuals subjected to two courses of therapy and all eight of those who experienced three courses were also cured of their infection. One patient in the second group is still being treated at the present time. These results are presented in Table I.

TABLE I
RESULTS OF PIPERAZINE THERAPY IN 172 CASES OF ENTEROBIASIS

		Number of cases Cured		
	Total No. of Cases Treated	Single Course (2-6 oz. of syrup or 6-18 grams of Piperazine)	Two Courses of Therapy (7-18 oz. of syrup or 21-54 grams of Piperazine)	Three Courses of Therapy (16-18 oz. of syrup or 48-54 gms. of Piperazine)
Children 1-13 years of age	141	98 (1 still under treatment)	33 (1 still under treatment)	8
Children over 14 years of age and Adults	31	26	5	0
Totals	172	124 (72.1%)	38 (21.1%)	8 (4.6%)

(2 under treatment 1.2%)

In the entire series of 172 pinworm infested individuals treated with piperazine in the course of this study, there were only three episodes of untoward reactions to the drug. These consisted principally of abdominal cramps; one patient was nauseated in addition. All were sufficiently controlled by a reduction in dosage so that it proved unnecessary to discontinue medication in any case. In one instance, once the manifestation had subsided with a lower dosage schedule, it was possible to return to the previous level with recurrence of the unwanted effect.

An occasional patient evidenced multiple parasitic infestation; the secondary organisms were identified as either Necator americanus, Strongyloides stercoralis, Giardia lamblia, or Ascaris lumbricoides. Where ascariasis was an intercurrent difficulty, piperazine successfully eliminated this infestation as well as the pinworm, in our limited number of cases. No effect whatsoever was observed against Necator or Giardia-induced infections, and it was not possible to evaluate the action of the drug against Strongyloides infestations. Further clinical trial in the latter condition is indicated.

Improvement in condition was manifested by an increase in appetite and body weight and elimination of gastrointestinal complaints which, at times, consisted of pain in the lower left quadrant stimulating that of acute or subacute appendicitis. It is important to consider, however, that pinworm infestation may be completely asymptomatic. The principal difficulty associated with the disease is an intense pruritis ani due to the migration of the gravid female worms out of the anus and onto the perianal and perineal skin. This provokes scratching of the affected parts which, in turn, may lead to eczema or pyogenic infection. In cases of severe involvement, anorexia, restlessness and insomnia are usual and rectal colic may also occur. In effect, the only true measure of improvement is the reduction and eventual elimination of evidence of the parasite on Scotch tape smears made during and after each course of therapy.

Recently, in an attempt to reduce the quantity of piperazine necessary to eliminate the pinworm, as well as the duration of therapy, we have initiated the practice of painting around the anus and even up into the rectum with bismuth violet. The solution is applied nightly just before bedtime and is blotted dry to avoid soiling bedclothes. To date, results in 30 cases not included in this study appear promising. In this limited group, only one course of drug therapy has been necessary and examination of stool samples and smears has demonstrated no evidence of the pinworm 14 to 50 days post-treatment. Further study is now underway.

SUMMARY AND CONCLUSIONS

Piperazine proved a highly effective oxyuricide in a series of 172 pinworm infested patients seen in office practice. Of the group, 124 or 72.1 per cent responded to a single course of therapy involving a total dose of 6 to 18 grams of the drug, 38 or 21.1 per cent required a second course of therapy involving a total dose of 21 to 54 grams, while 8 individuals or 4.6 per cent were cured by three courses of therapy during which they ingested a total of 48 to 54 grams of piperazine. Two patients or 1.2 per cent of the group are still undergoing treatment at the time of this report.

Piperazine was well tolerated by all but three of our patients, even at the highest dose levels used. Three instances of abdominal cramps, associated with nausea in one patient, subsided with reduction in dosage. In no case was medication discontinued.

Each patient was instructed with regard to measures of personal hygiene and environmental sanitation necessary to prevent reinfestation but otherwise no control could be exerted in this regard. In view of the likelihood that the average individual will lapse into former unsanitary habits before the parasite is completely eliminated from the household make evaluation of the permanence of cure difficult. Should reinfestation occur, additional courses of piperazine therapy may be undertaken without danger of severe untoward effects.

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Carcinoma of Stomach – Case Report

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CARCINOMA OF THE stomach is usually found in patients who have passed 40 years of age. This case is being reported because of the age of the patient, the family history and the follow-up studies which have been carried out to date.

This patient was first seen on November 6, 1954, complaining of cramping in her stomach. She stated that she gets real full and cramps in the epigastrium, also there were intestinal growls, pain gets worse on eating or getting hungry. These symptoms have been present for the past two weeks. Last evening she had so much pain that she was unable to sleep. She was told at the age of 17 that she had a nervous stomach; however, there was no pain existing at that time. She has spat up food to get relief from pain, also has taken castoria which produces severe cramps. She states that she cannot eat heavy or greasy foods. Chili is particularly objectional. Last evening she ate an orange and had severe pain. Her menstrual history was normal with menses beginning at 11 years of age and lasting from six to seven days. Three years ago her cervix was dilated for relief of cramps. She obtained relief and the duration of her menses was reduced to two to three days. For the past three weeks she has had a vaginal discharge. Four months ago she took some shots and some iron.

FAMILY HISTORY: Father and mother are living. Her father is not in good health. He has had an operation for hemorrhoids and for stomach trouble recently at the Baptist Hospital in Jackson. She had one sister who died at the age of 21 years with cancer of the stomach about one year ago. She has 5 siblings living, all younger than she and one has stomach trouble. No x-rays have been made. P.E. showed a well developed nourished adult female who weighed approximately 110 pounds. She appeared somewhat anxious about her condition but was not acutely ill. There was slight tenderness on palpation in the left abdomen but no masses were palpated. There was definite tenderness in the lower right quadrant but no rigidity of the muscles.

On pelvic examination there was slight bleeding from the cervix and the uterus was retroverted. No masses were felt on left side. There was an enlargement of the right ovary to approximately three times normal size and it was tender. She was given an injection of A.P.L., 1000 units. Two days later she was seen again and stated that her stomach was somewhat better; however, she had been hurting in the lower abdomen all day. There was slight bleeding this morning but none yesterday. At this time she was placed on pamine, 30 minutes after meals and instructed to continue donnital, 1 tablet 30 minutes before meals. Another injection of A.P.L. 1000 units, was given.

On 11-10-54 she came into the office still complaining of soreness in her lower abdomen stating that it was throbbing continuously and that her pain was worse than it had been previously. Pelvic examination at this time showed that the right ovarian cyst was still present and the uterus was again found to be in a third degree of retroversion. She was advised to have a pelvic laparotomy and told at this time that her stomach and gall bladder could be examined through the lower abdominal incision. She was admitted to the Baptist Hospital and on November 11, surgery was performed. The right ovary was removed and found to contain a follicular cyst 4 cms. in diameter and a large corpus luteum cyst. It was also noted that there were several implants of endometriosis in both broad ligaments and that a blood-stained serous fluid exuded from the left broad ligament into the pelvic area. Palpation of the upper abdomen revealed a mass in the pyloric region of the stomach which was about the size of a small lemon. On palpating this mass, it was decided to suspend the uterus by a modified Gillian procedure and close the lower abdominal incision. An upper left rectus incision was made and the mass which had been previously felt in the stomach region was seen to be about the size previously mentioned. This mass was an infiltrated type of lesion predominantly on the greater curvature of the stomach, and in one area appeared to involve the serosa of the stomach. A sub-total gastric resection was done with removal of a portion of the gastro-hepatic omentum followed by a posterior polya type of anastomosis.

PATHOLOGY REPORT: Gross Description—This specimen consisted of a portion of ovary which measured 4.3 x 3.0 x 2.5 cms. One pole was somewhat fluctuant and this area was seen to overlie a 2 cm. cyst that had a smooth gray lining and contained a clear watery fluid. Adjacent to this was a large corpus luteum measuring 2.5 cms. across. The next portion of this specimen consisted of a portion of stomach measuring roughly 15 cms. in greatest length. It had been opened prior to receipt in the laboratory. On the lesser curvature aspect was a zone of infiltration measuring roughly 9.5 x 5.5 cms. In this zone there was thickening of the wall of the stomach up to 1.2 cms. in thickness. It was opaque to slightly amber colored on transverse section. Along the greater curvature aspect were noted two ulcers one of which measured 4.7 x 4.0 cms. and the other which measured 3.0 x 2.5 cms. These were quite shallow and had irregular edges. Tumor extended to within 2 cms. of the transected edge. Seven structures thought to represent lymph nodes were isolated from the adjacent fat.

MICROSCOPIC DESCRIPTION: Sections of the stomach showed considerable variation in microscopic pattern. The tumor was obscured in portions of the base of the ulcer by inflammatory reaction. Near the edge of the ulcer there was rather haphazardly arranged anaplastic tumor cells, many of which were signet ring cells. In one large section there was a large zone beneath the base of the ulcer in which the picture appeared predominantly as that of a mucinous adenocarcinoma with large almost clear spaces in which many signet ring cells were interspersed here and there. Elsewhere, the wall of the stomach showed the picture of a diffuse infiltrating type carcinoma or carcinoma of the linitis plastica type. There were only scattered tumor cells some of which were signet ring and in association with the involved areas there was fibrosis and some inflammatory reaction. One section showed the tumor to extend all the way through the wall of the stomach to the serosal surface with a few tumor cells thought present in the adjacent fat. No lymph nodes were involved.

MICROSCOPIC DIAGNOSIS:

1. Diffuse infiltrating carcinoma of stomach.
2. Eight negative lymph nodes.
3. Follicular cyst, ovary (2 cm.)
4. Large corpus luteum, ovary.

After a somewhat stormy convalescence with fever and vomiting, she was discharged from the hospital about December 1, 1954. She was seen in the office on December 3, at which time she had been vomiting considerably. She was placed on elixir B-won and liquid taka-diastase, equal parts, 1 tablespoon three times a day. On December 30, she was again seen at which time she stated that she had had some vomiting, periodically, consisting mostly of bile. There was no pain and no fever. She weighed 100 pounds and was getting stronger; however, she stated that she could not eat sweets.

On January 25, 1955, a G.I. series was done which showed a well functioning gastroenterotomy with no retention of barium after two hours and no evidence of malignancy could be seen. She was to return to work as a telephone operator on February 1, 1955. In February, 1956, she was given penicillin for a severe respiratory infection and developed a penicillin rash which cleared under treatment. On February 3, 1956, she was seen and repeat G.I. series showed no evidence of malignancy. She had been working regularly and had regained her original weight. X-rays of the stomach probably should have been made prior to surgery had not the pelvic process become acute.

CONCLUSION

1) This 24-year-old female has shown a beautiful response to sub-total gastrectomy for carcinoma of the stomach with lesions extending through the wall of the stomach to the omentum, but no glandular envolvement. 2) Indications of a familial predisposition to cancer are present. 3) Total gastrectomy would have accomplished no better results in our opinion and this patient is not requiring supplemental feedings, vitamins, etc.

Nothing can produce so great a serenity of life, as a mind free from guilt, and kept untainted, not only from actions, but purposes that are wicked. By this means the soul will be not only unpolluted, but not disturbed; the fountain will run clear and unsullied, and the streams that flow from it will be just and honest deeds, ecstasies of satisfaction, a brisk energy of spirit, which makes a man an enthusiast in his joy, and a tenacious memory, sweeter than hope. For as shrubs which are cut down with the morning dew upon them do for a long time after retain their fragrancy, so the good actions of a wise man perfume his mind, and leave a rich scent behind them. So that joy is, as it were, watered with these essences, and owes its flourishing to them.

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Recent Advances in Physiology and Biochemistry*

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IN A PAPER of limited length, we cannot consider all of the advances made in ophthalmology, and so we shall confine this discussion to things of interest because of practical application, or a change in old concepts.

NEUROLOGY AND MOTILITY

The study of visual fields is a fairly exact procedure, but subject to considerable error from subjective factors and methods of taking the field. There are two improvements in field-taking, by Harrington. The use of ultra-violet light and fluorescent targets in both perimetry and tangent screen work gives more easily controllable illumination, greater contrast between the brilliantly illuminated targets and the background, and less distraction by the observer in the relative darkness of the test room.

Harrington and Flocks[10] have developed a multiple pattern field screening device utilizing ultraviolet light and fluorescent sulfide pigments to produce white, red, green and blue test objects. In the screening test, one eye is occluded, and the other tested after centering so that a fluorescent cross in the blind spot area is not seen. Cards with various patterns of dots, dashes, and crosses are shown in order, with the patient fixing upon a central dot. The ultra-violet light source, calibrated to give one-fourth second flash, is tripped, and the patient reports what he sees, as four dots, dash and cross, etc., or if there is a field defect in that particular area, he sees nothing. The responses are checked on a field chart, and a gross outline of a field defect made. If the screening test shows any defects, perimetry and tangent field studies are in order; if no defect is found and there is reason to suspect a lesion they should be done. The test is simple, and can be administered by anyone after a few minutes instruction. It is more objective than the finer field studies, so needs less technical skill in testing. Old persons, or inattentive, may give false misses and require retesting, or the other field studies. In young and attentive patients, the method is quite accurate, often picking up unsuspected defects. The whole thing takes less than five minutes to set up, test, and record, so can be included as a routine procedure if desired.

Flicker fusion is still in a process of evaluation. Miles[15] and Havener and Henderson[11] have done considerable work with this method in an effort to correlate flicker fusion ability and field changes. The flicker fields are comparable in most instances with 1/1000 or 1/2000 tangent fields in picking up early glaucoma defects, the depression of the field seen in pregnancy as bitemporal loss of a crescent of the field in the upper quadrants, and in early edema and detachment seen in toxemias. The method is simple, quick and quite easy to operate, but requires a fairly expensive test equipment as compared to the tangent screen. The method of charting results indicates difference in critical flicker fusion frequency on either side of symmetrical parts of the retina, as, above and below the horizontal raphe. Normally the CFF is about 45-50 per second at the fovea, slightly higher at 5-10° from the center, then gradually decreasing as the extreme periphery is approached. Field defects as noted in flicker fields and multiple pattern tests are recorded and may be compared with tangent field results.

It is noted that frequently there seems to be a progression of field defects in glaucoma patients whose tension apparently is controlled by miotics or by surgery when the previous fields are compared with post-miotic or post-surgical fields. These, in many cases, may be due to artificially induced myopia and small pupil under miotics, or progression of cataract changes frequently seen in glaucoma, so one must proceed with caution and be aware of possibly misleading field changes.

At the New Orleans Academy of Ophthalmology symposium in February of this year, several new points and changes in old concepts were brought out. Evidence was presented that divergence, formerly considered by many to be due to passive relaxation of tissues, is an active process under control of a divergence center thought to be between the VI nerve nucleus and the VIII nerve nucleus. Electromyography of animal and human eyes showed increase of electrical activity of the medial recti, and a decrease in lateral recti on convergence. This changed on looking from near to far so that the medial rectus activity decreased, and that of the lateral recti was increased in a similar manner to that seen on looking to one side. One problem in technique is development of an electrode that does not require surgical placement through a conjunctival incision as those now in use do. Dr. Adler and others on the staff allowed the electrodes to be placed in their lateral recti, and they state it is not comfortable yet.

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*Presented before Section on Eye, Ear, Nose and Throat at the eighty-seventh annual meeting of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

Another disputed topic is that of presence or absence of proprioception in the extraocular muscles. Previous investigators have not demonstrated nerve endings of the appropriate type. Wolter[19] reports identification of six types of sensory nerve endings. These are: 1) muscle spindles, 2) flower-bud-like endings, 3) arboreal termination, 4) brush-like endings, 5) spools and 6) end-bulbs. Many of the sensory spindles were wrapped around muscle fibers somewhat in the manner of the proprioceptive fibers in the long muscles of the body. Others ended in the connective tissue as brushes, spools, and bulbs. No measurement of proprioceptive impulses has been made, but we now know there are endings present in the ocular muscles that are of the type required by analogy with other muscles.

RETINA AND VISION

The gross structure of the retina has been well studied, but not much has been known about the cell structure of the rods and cones. Sjostrand has presented an analysis of rods and cones with the electron microscope, revealing a remarkable regularity of their structure[17]. In the guinea pig, the rod outer limb consists of a regular stack of 1400 membranes connected in pairs to form "double membrane discs."

The question of retinal pigments is still under observation. Wald and associates[18] have synthesized a fourth pigment called cyanopsin. Rhodopsin or visual purple of the rods has its spectrum toward the violet end, with a peak in the yellow, while the cyanopsin spectrum extends into the red end of the absorption spectrum, and so could be a "red receptor" in color vision.

Findings by Brattgard of the influence of adequate light stimulus on growth of ganglion cells and the development of chemical constituents of these cell elements may perhaps explain, in part, poor vision of the children reared in dark basements and miner's nystagmus. In studies on rabbits there was noted a considerable increase in the nucleoprotein fraction from 11 days to 10 weeks. In adult nerve cell the quantity of nucleoproteins changed considerably with variations in the degree of stimulation. When kept in darkness for three days, there was a ten-fold decrease in nucleoprotein content. This increased to normal when again given adequate light.

Ten-week-old rabbits which had been exposed to adequate stimuli had a protein fraction of 0.31 x -9 mg. per cubic micron, and a nucleoprotein fraction of 0.47 x 10-9 mg. per cubic micron. Animals of this age which had lived in total darkness from birth had a protein fraction of only 0.16 x 10-9 mg. per cubic micron. With inadequate stimulation after birth, the nerve cells developed incompletely, and their chemical composition and metabolism suffered.

Retrolental fibroplasia still occupies the investigators[2],[13],[20]. There is speculation concerning the cause, but the consensus of most observers seems that it is probably a result of overuse of oxygen in maintenance of premature infants. The eyes most often damaged are those of infants with poorly vascularized retinas and birth weight under 4½ lbs. The first signs of overtreatment with oxygen are constriction of retinal vessels, or even obliteration in severe cases. There is in the next stage formation of capillary tufts on a flat retina. Later tufts of capillaries, small hemorrhages, slight retinal edema and vitreous changes are seen. These first stage changes may be reversible. Later, with extensive vessel formation with invasion of the vitreous, severe retinal hemorrhages, vitreous disorganization, and prominent retinal edema, there is permanent damage. Following this stage retinal separation begins, and varies from slight to complete.

Retrolental fibroplasia is now the most common cause of infant blindness and the incidence is increasing. This is partly due to the increasing numbers of premature infants born alive and kept alive. It is noted that the most frequently involved eyes are in very premature infants requiring oxygen, in which long-term exposure to high concentration has been noted. In hospitals where little oxygen is given, or in which the respirators or incubators are leaky and oxygen content cannot be kept high, there seems to be a lower incidence. Bedrossian, et al[2], feel that the disease seems to be anoxic in character in many infants, with the lesions noted to regress when oxygen therapy is given. They also note its sudden onset in infants abruptly withdrawn from high oxygen. It is advised that oxygen be used as necessary to resuscitate or maintain these infants, but that care be taken to keep the concentration as low as possible to do the job, and use it as short a time as possible. On withdrawing oxygen, it is thought advisable to decrease the amount gradually over a period of a day or so, as frequently change from high to low concentration has been thought to cause further spasm and damage to the retina.

AQUEOUS, I.O.P., AND GLAUCOMA

The present concept of aqueous formation is that there is active secretion of certain ions by the ciliary epithelium, and diffusion of water to manitain a "steady-state" rather than a true equilibrium, as the aqueous flows through the eye and out the drainage system at a tremendous rate. From Schlemm's canal the aqueous passes by aqueous veins to the external capillaries of sclera and conjunctiva. It is now agreed that there is direct communication between the anterior chamber and the aqueous veins.

Tonography is becoming more standardized and offers a mechanical explanation for obstruction of outflow, both in the narrow angle glaucoma with iris or synechiae blocking the trabeculum, and in open angle glaucoma in which there is a measurable decrease in outflow despite a normal appearing angle. Grant and Trotter[6] have conducted experimental studies to evaluate on enucleated eyes the present methods of tonography, to check the value of the coefficient of scleral rigidity estimated by Friedenwald, and to compare the facility of outflow in enucleated eyes with that found in life. They found that Friedenwald's coefficient is accurate for living eyes, and that the lower coefficient in enucleated eyes must be taken into account when calibrating tonometers and allowance made of it in calculations.

They suggest that most of the normal resistance to outflow may be due to a stable structure (or stricture) within the eye, rather than to some function of the external vascular or nervous system. This line of investigation is being pursued.

Gonioscopy continues to be a useful procedure. The recent change in the Allen gonioprism, making it with four sides, has greatly improved the ease of observation of the vertical and side quadrants of the anterior chamber angle.

The advent of diamox, a sulfonamide preparation that inhibits the carbonic anhydrase enzyme of the ciliary epithelium, has been of considerable use in controlling acute pressure increase by decreasing the inflow of aqueous through the ciliary epithelium mechanism. A gratifying fall in pressure following use of diamox in the amounts of 500 mg. to 750 mg. results in many cases; however, in a few cases no decrease is seen, or after the initial fall a secondary rise occurs. It seems that the main use of diamox is in preparing a patient for surgery in an acute attack, and there seems to be no particular limit to the length of time the pressure responds to continued use in some cases in which surgery had to be deferred. A few cases of toxicity or sulfonamide reaction have been reported, and it has been suggested that long-continued depression of inflow may dispose to further embarrassment of an already inadequate outflow mechanism by decreasing the static pressure and allowing collapse of previous channels.

Cyclodiathermy, as advocated by Castroviejo and others is a useful method of lowering intraocular pressure. It decreases the ability of the ciliary body to form aqueous, probably by sclerosing part of the blood supply, and is a sort of "surgical diamox." I have found it to be especially useful in treating patients of the colored race, as it may be repeated several times without apparent ill effect, and serves to control tensions not controllable by miotics as well as or better than most other operations. I have also used it in a few cases of severe intractable glaucoma in aphakic, diabetic patients following hyphemia or vitreous hemorrhage. In one, several paracenteses had been done with prompt return of the blood and continued high pressure. Following cyclodiathermy the pressure was normalized, and the hyphemia cleared promptly. The procedure has been repeated three times on one eye, and twice on the other eye of a Negro patient who had had trephines, cyclodialyses, and iris inclusion, with only temporary relief. When I inherited him, the tension was in the 40-50 range in both eyes and his fields inside 10°. Vision was 20/30 and 20/50. Over a period of two years his pressure was kept "normal" most of the time with 1.5 per cent carcholin and 4 per cent pilocarpine. In the periods of increasing tension repeated cyclodiathermy lowered the pressure. After the last operation the pressure remained below 20 for eight months until he passed from my observation. The fields did not seem to be decreased, and the vision was maintained fairly near 20/30 - 20/50 after recovery from each attack upon the ciliary body. Essentially the same technique described by Castroviejo[3] was used. The diathermy is applied with a 1.5 mm. needle, perforating the sclera 14 times about 6 mm. from the limbus equally spaced around the globe, avoiding the horizontal meridians because of the long ciliary vessels. The current is applied for 5-6 seconds with a setting of about 40-50 milliamperes, depending on the amount of local reaction obtained. There is an initial rise in tension, followed by a fall to normal or subnormal levels. If necessary to repeat the procedure, the perforations are placed in fresh sclera, avoiding the previous puncture scars. I usually employ only 7-10 punctures, depending on the level of tension, in the second procedures. Following treatment the pupil is dilated with atropine, antibiotics are employed, and after a day or so cortisone is added if iridocyclitis is troublesome. In white patients I still prefer the conventional surgical procedures in the first instance, and reserve cyclodiathermy for those that fail. but in the few cases in which it has been used as a primary procedure the pressure has been quite well controlled. Not infrequently miotics are needed in addition, just as with the other procedures.

The Seton operations, using a coil, wick, or wire of gold, horsehair, tantalum, etc., to keep a fistula open, have not proved to be desirable, due to the intolerance of the eye for foreign bodies in this location.

CORNEA AND LENS

The problem of corneal transplant opacification always brings up the question of what effect corneal nerves have. Escapini reports[5] a study of clinical testing of sensitivity in 50 corneal grafts, both clear and cloudy, done up to 10 years previously. Thirty-four were clear, 2 translucent, 4 cloudy, and 10 opaque. In 40 day grafts it was found that there was sensitivity in the host cornea. Clear and opaque grafts responded alike. From 40 to 90 days there was gradual increase in sensitivity in the periphery of the graft, and a wink reflex began to appear. Up to six months there was increasing sensitivity with slow progress toward the center of the cornea, and up to 12 months there was little change. In the second year, the center was dull but the periphery of the graft was as sensitive as host cornea. In the 7- to 10-year grafts, no difference in sensation was found. Thirty-seven of the cases were of keratoconus and showed the typical return of sensation. Thirteen of leucomas, dystrophies, or descematoceles showed variable return, some greatly delayed.

In clear grafts sensation returned at the periphery in about 45 days and after 20 months was present in the whole graft. In opaque grafts the return of sensitivity began about the same as in clear ones, but progressed toward the center more rapidly, with sensation in the center by the twelfth month. All were vascularized, and the vessels offered an easier pathway for penetration of axons in the graft. When return of sensation was delayed, it was most likely due to changes in the nerves of the host.

A histologic study was made of 20 corneal grafts, 19 opaque and 1 clear, removed 8 months to several years after the original operation. The nerve axons were stained, and studied. New nerves of normal appearance were seen in stroma and epithelium. They did not always follow the blood vessels, and most had a sheath of Schwann. The presence of nerves plays an important part in trophic and nutritional balance, but seems to have little effect on opacification.

Beta radiation has in recent years been used quite successfully in the treatment of many external ocular conditions since the penetration of the rays is slight and accurate placement of the applicator is possible. Hughes[12] and McDonald, Hughes and Pfeiffer[14] report an experimental series of cataracts induced in rabbits by varying application of Sa^{90}-Y^{90}. The depth dose of the beta particles from this applicator of Sr^{90} is comparable to that of radium and radon. An attempt to calibrate the rep output of Sr^{90} with gram-seconds of the radon applicator was made on rabbit lenses. It was found that the relationship was 2000 to 3000 rep per gram-second, in producing cataract, and 2500 rep per gram-second in producing a nebular but permanent corneal opacity. This indicates a similar depth dose. When beta particles were screened out by 1 m.m. of silver, the gamma rays produced only 1 cataract in 20 rabbits, with doses as high as 64 gram-seconds, indicating that beta particles are the important cataractogenic particles.

The typical lesion is a wedge-shaped formation of granules and vacuoles beneath the treated area with the base at the equator and the apex directed posteriorly.

They report 73 radon treated eyes in which the cornea was clear enough for study of the lens with widely dilated pupils; 45 had definite radiation opacities and vacuoles; 13 had questionable opacities, and 15 had non-radiation type opacities; 3 cataracts required extraction, and in 3 additional eyes it was felt that the beta radiation opacities might have contributed to reduction in vision. In these 6 eyes the total dose ranges from 43-53 gram seconds. In the remaining 39 eyes, the radiation opacities have not as yet contributed to any reduction of vision. Many of the fine lesions after small doses could be detected only by wide dilation of the pupil and examination of the lens periphery with a brilliantly illuminated ophthalmoscope (Giantscope or Keeler.) The earliest opacities were seen after 29 months, and the smallest dose was 4 gram-seconds in human eyes. No opacities have been reported yet in using Sa^{90} but the maximum follow-up is only 18 months.

By comparison of results from the rabbit experiments and the human series, it seems that the rabbit lens is at least 4 times as sensitive as human lens, and the lens tolerates 10 times the beta dose applied to the center of the cornea as when applied over the limbus. They consider a "safe" dose in humans no more than four times that which produces barely perceptible dusty opacities along the posterior horizontal suture in rabbits: 2000 rep at limbus or 20,000 rep over the central cornea. From these figures, it is assumed that in humans vacuoles at the equator are a risk when doses of 12,000 rep or 4 gram-seconds are applied to the limbus. This applies to single doses.

The radium D applicator has a depth dose of 10 per cent at 1 m.m. and so would not endanger the lens, but is not as effective in treating certain corneal lesions such as deep vascularizing keratitis. They state that radium D. might be the treatment of choice for recurrent pterygium, and that radium, radon, and Sr^{90} might be reserved for severe conditions such as very malignant pterygiums, deep vascularizing keratitis, epithelioma and vascularization complicating keratoplasty.

Cortisone and hydrocortisone are still being investigated. It is definite that they are actually harmful in many virus conditions, especially herpetic. Their greatest use is in the iritis and uveitis cases, and external conditions such as episcleritis, scleritis, and the allergic keratitis cases such as phlyctenular and vernal kerato-conjunctivitis.

They are useful in decreasing the inflammatory reaction in ulcers after the infectious process is past and healing is taking place. Ashton and Cook[1] investigated the effect on vascularization of the cornea from alteration in the compactness. In edema or with mechanically reduced compactness of corneal tissue, it was noted that when the potential pathways were in communication with limbal vessels and maintained for a long enough time that vascularization was frequent. They found that cortisone was able to restrain swelling of the cornea, and believe that the compact cornea is more resistant to vascularization.

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Nothing is too little to be ordered by our Father; nothing too little in which to see His hand; nothing, which touches our souls, too little to accept from Him; nothing too little to be done to Him. E. B. Pusey

Distinguished Service Oration – Hugh Agnew Gamble, M. D.*

HOWARD A. NELSON, M.D.
Greenwood, Miss.

HERE, TONIGHT, on the eve of the celebration of this centennial anniversary of our association, we are gathered to warm our hearts with pleasant memories, give gratitude and pay homage to one of our departed members—Dr. Hugh Agnew Gamble. I should be much less than frank if I did not tell you that I know there are men in this audience eminently better qualified to speak about Dr. Gamble than I am, men who could bring to this discussion a far richer experience, infinitely greater wisdom, and a more mature reflection; however, our president has accorded me this honor, and it is with a spirit of humility and pride that I speak in retrospect about the full life of this loyal member.

Of Dr. Gamble's life, I may say he truly had a rendezvous with destiny. His thoughts led on to purposes; his purposes went forth into action; his actions formed habits; his habits decided his character, and his character shaped his destiny.

Man alone is capable of asking what he will do with his life, with that little span of time allotted to him, and likewise, he can help shape the society of which he is a part for good or for evil. It is this God-given choice that sets man apart and enables him in the face of an infinite universe to call his soul his own.

Dr. Gamble was a native Mississippian. He was reared in the true Southern tradition by his parents who belonged to a generation that taught self-reliance and the exercise of one's own initiative as a motivating force in which one was to find himself in the world's scheme of things. He was educated in the South, served his internship here, and established his clinic, the first in Mississippi, at Greenville in 1907. His interest and talents were both varied and cosmopolitan. As a soldier, he served his country during the Spanish-American War. Mechanized farming interested him, and through his creative genius he helped to develop one of the first mechanical cotton pickers used in the Mississippi Delta.

The era covered by Dr. Hugh's practice was the first half of the twentieth century. As he journeyed along life's road, he passed many milestones, and the progress of medicine likewise passed many. As it has been since the beginning of time, civilizations, cultures, empires, religions, and professions have been pictured at the crossroads. As Dr. Gamble approached the crossroads of medicine, it was not impulsive opposition that he gave, but soul-searching tolerance and leadership was rendered. He was counted as a charter member of the American College of Surgeons and was one of the founders of the American Board of Surgery. Our own association honored him with its presidency in 1929. In the organization of the Mississippi Division of the American Cancer Society his efforts were tireless and enthusiasm exciting. He was an advocate of the unlimited possibilities of this organization for research and educational purposes, receiving its distinguished service award in 1951.

The contribution of the physician to this world is prevailingly to improve upon it, and to this concept Dr. Hugh was no exception. The alarm clock of history is wound up in periods of crises and proceeds to run down at times. Today's days are lived at the high tension of alarm. Catastrophe confronts us, and with the superficial inquiry as to its cause, we seek to correct it. One cannot practice medicine and humanitarianism by legislative edicts or by the elected officials taking responsibility for the failure of the doctor-patient relationship. We of the medical profession must not surrender our individual professional liberties to hospital administrations. There must be taught and not forgotten the fundamental responsibility of the physician to his patient; that is, to treat the patient. Shakespeare said that "The old order changes yielding place to the new," and so it must be as the sands of time sift and mankind through his humble but sincere efforts seeks to fulfill his obligations to society. Dr. Gamble's range of loyalty extended far beyond his family and profession. His religious convictions were sincere serving his God and church as an elder for many years. The physician's responsibility and duty as a leader in this modern society was a privilege enjoyed by this gentleman. He realized that he was a citizen of his community and committed irrevocably to its successes and failures. For twelve years as a city councilman of Greenville, he exerted a most wholesome and constructive influence upon the economic, social and political life of this community. He vacated his ivory tower, removed his scientific cloak, and did the job cut out for him both toward organized medicine and civic affairs.

Dr. Gamble achieved success because he lived well, laughed often and loved much. He acquired the love of little children. He always looked for the best in others, knowing that he had given them the best that he had. He did not expect too much of life or of the people amongst whom he dwelt, learning that we all aim at the unobtainable and must content ourselves in finding the broken pieces, accepting courageously disappointments and defeats and bravely fighting on, only with the acquisition of quiet wisdom as his reward. Dr. Gamble's rendezvous with his destiny was a rendezvous with a better tomorrow. "There is a mysterious cycle in human affairs, to some generations much is given. Of other generations much is expected." "The statesman, the general, the men of affairs all pass away and are forgotten, but to have builded oneself into the structure of an undying institution, to have aided in these priceless agencies of civilization is to have lived not in vain but to have lived in perpetuity." His life has been an inspiration, his memory a benediction, for he felt and believed that it was still morning in American medicine.

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*Presented at the annual meeting of the Mississippi State Medical Association, Jackson, Mississippi, May 8, 1956.

MEDICAL EXAMINATION

Medical examinations for license to practice medicine in the state of Mississippi will be held by the Mssissippi State Board of Health on June 25 and 26 at the Edwards Hotel, Jackson, beginning at eight o'clock each morning, according to Dr. Felix J. Underwood, executive officer.

By state law, applications for medical examinations must be filed at least ten days before the date of examinations. Application blanks and full instructions may be secured by writing Dr. R. N. Whitfield, assistant secretary, Mississippi State Board of Health, Jackson, Mississippi.

The examinations on June 25 will cover the first two years of medical study, including anatomy, chemistry, physiology, histology, bacteriology, pathology, materia medica and pharmacology. The following day examinations on the last two years course in medicine are scheduled, touching on the applicant's knowledge of disease of the eye, ear, nose and throat, hygiene, theory and practice of medicine, obstetrics, gynecology, surgery, and physical diagnosis.

According to state law an applicant may take an examination on the first two years of his medical course and return after the completion of his four years' course and take the examination on the last two years of medicine.

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CARDIOLOGY

A recent article in *Circulation* (April, 1956) was devoted to the effect of pregnancy on the course of heart disease with re-evaluation of 106 cardiac patients three to five years following the pregnancy. (Miller and Metcalfe, April, 1956—Vol. 13, No. 4).

The course of these 106 cardiac patients was surprisingly good in regard to survival and well being. There were no maternal deaths during pregnancy or in the postpartum period. Three to five years after their pregnancies only three of the 106 patients were dead, and 65 of the patients were functionally unchanged, according to the American Heart Association classification. Twenty-seven patients showed an improvement in their cardiac function. However, five of these undoubtedly owed their improvement to valvuloplasty and to resection for coarctation of the aorta, both surgical procedures that have quite dramatic beneficial capacity in themselves.

Many physicians will be surprised in hearing of the relatively benign course of the patients in this study. It is known, however, that the adult patient with valvular heart disease may maintain well-being for many years before congestive heart failure occurs. Furthermore, all these 106 patients had already survived to the child-bearing age and thus had passed the period of greatest mortality in the natural history of rheumatic fever. Thus, in a real sense, these patients had been selected by the natural history of rheumatic fever as a group with a relatively good prognosis. In addition, in five of the patients with rheumatic heart disease and one with congenital heart disease (coarctation of the aorta), the natural history of the disease was altered by surgery.

These patients were also further selected by the fact that they were well enough to become pregnant and to complete it, except for sixteen who had therapeutic abortions. A review of the literature shows that the age of death in nulliparous women in comparison with those who had survived pregnancy, showed that women who had borne children do not die sooner than either nulliparous women or males with rheumatic heart disease. Furthermore, these earlier studies show that even multiple pregnancies could not be held accountable for any reduction in the average age of death. It is the consensus at the present time that there is nothing to suggest that the heart is damaged by child bearing, or that the course of the rheumatic process is accelerated by pregnancy.

A woman with heart disease who has entered or is planning pregnancy will certainly ask questions involving the above information. One of her first questions will involve her chance of surviving pregnancy, and it is well known that in women with heart disease, this maternal mortality varies from less than one per cent to more than three per cent in patients under careful medical management throughout their pregnancies. Hamilton has pointed out that the immediate maternal mortality will be influenced by the severity of the heart disease at the time of pregnancy, judged by careful review of the patient's history with particular regard to the previous occurrence of heart failure, the maternal age, the availability of good medical and obstetrical advice, and the cooperation of the patient. It will also be affected by the policy of the patient's physicians toward the interruption of pregnancy since if pregnancy is interrupted early in all patients with severe heart disease, the immediate maternal mortality might decline, possibly at the cost of an increased fetal mortality.

The second question this woman will ask will be what chance she has of producing a living infant. This question has been studied in large clinics and an infant mortality of six per cent in women with compensated heart disease and fifteen per cent for infants with mothers in congestive heart failure has been arrived at. If, to this latter figure is added the fetal mortality due to therapeutic interruption of pregnancy, the total mortality may be as high as thirty-five per cent in women with congestive failure during pregnancy. Thus, these two questions can be answered in fairly definite terms.

The third question she will ask will be directly concerned with the above review, and will be in regard to her prognosis for life and health once the immediate dangers of pregnancy are past. This can be summarized by stating that this study indicated the altered circulatory dynamics of pregnancy may temporarily decrease functional capacity, but no permanent change in degree of heart disease could be directly attributed to the pregnancy, except in unusual cases.

SURGERY

(Contributed by Dr. William T. Williams, University of Mississippi Medical Center)

The almost fantastic rate of progress of human cardiac surgery was so forcibly emphasized by many of the papers presented at the recent annual meeting of the American Association for Thoracic Surgery that it is worthy of mention at this time.

We are all familiar with Blalock's pioneering effort in fashioning a systemic to pulmonary shunt to bypass the obstructed pulmonary artery in the tetralogy of Fallot. Likewise, the interruption of a patent ductus arteriosus and resection of a coarctation of the aorta is an operation known by all to yield excellent results while suffering a mortality rate less than that experienced in many abdominal surgical procedures. Of the acquired cardiac lesions, the surgical alleviation of mitral stenosis is established as giving the best results with the smallest mortality rate. A recent series of 150 consecutive mitral valvotomies was reported without a single fatality.

The surgical treatment of aortic valvular disease, mitral insufficiency, coronary artery disease and a large number of congenital cardiac defects by conventional methods was either lacking or left a great deal to be desired—this was the field in which open cardiac surgery was a necessity and was the field which was covered so thoroughly in the Thoracic Surgery Association papers.

In contrast to the above mentioned extracardiac and digital intracardiac procedures, the use of a pump oxygenator (mechanical heart lung) which permits definitive operations on the open nonfunctioning heart has not been so widely known. During the past two years, open cardiac surgery utilizing the pump oxygenator has been performed on large numbers of patients with interventricular septal defects and the tetralogy of Fallot. Lillehei's group from Minneapolis reported on fifty patients and Kirklin *et al.* on 37 patients—others reported smaller numbers—who had undergone surgical correction of these congenital defects. The surgical mortality at first glance would seem prohibitively high—15 to 30 per cent—but on closer inspection these points come to light. The pump oxygenator system was not responsible for mortality: the mortality rate in patients in the "desperate" risk group was exceptionally high, whereas the rate in those seen early with a still responsive myocardium was in the same range as already well accepted major abdominal and thoracic procedures: the operative procedure is curative and the patients should realize a normal life span provided the disease has not already deprived his heart of the myocardial reserve necessary to regain normal function. Thus, it would appear that, in addition to the continuing modifications of apparatus and technique, the big step necessary in the correction of these defects is early recognition and early treatment: the same principles that are applied to cancer, appendicitis and nearly every other disease. Judging from the progress made in the past few years, it should be but a short time indeed before the successful correction of any and all congenital and acquired cardiac lesions will be a reality.

COURSE IN PEDIATRIC ALLERGY

New York Medical College Flower and Fifth Avenue Hospitals, Division of Graduate Studies, Department of Graduate Pediatrics, announces a Postgraduate Course in Pediatric Allergy, under the direction of Bret Ratner, M.D., Professor of Clinical Pediatrics and Associate Professor of Immunology, November 7, 1956-May 29, 1957, 30 sessions, Wednesdays, 9 a.m. - 4 p.m. Fee $300.00.

Course consists of lecture-seminars, laboratory and clinical procedures, clinic work, ward rounds and animal experimentation covering basic principles of diagnosis and treatment of allergy in children, and applied immunology.

Applicants must be certified in pediatrics or have the requirements for certification. Enrollment limited.

Apply: Office of the Dean, New York Medical College, Fifth Avenue at 106th Street, New York 29, New York.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

THANKS MR. EDITOR! The officers wish to thank Dr. W. H. Anderson, editor of the *Mississippi Doctor,* and a good Academy member, for the opportunity to present each month's news of interest and importance to the family doctors of Mississippi.

ANNOUNCING . . .

The Eighth Annual Scientific Assembly of the Mississippi Academy of General Practice on September 19 and 20, 1956, in Jackson. Mark these dates on your calendar and plan to attend. Program Chairman Dr. W. Moncure Dabney is lining up an impressive group of speakers; the full program will be announced later.

MEET YOUR OFFICERS:

President—W. E. Lotterhos, M.D., Jackson

President-elect—A. V. Beacham, M.D., Magnolia

Vice-president—A. K. McMillan, M.D., Lucedale

Secretary-Treasurer—A. T. Tatum, M.D., Petal

Delegates to AAGP—S. S. Kety, M.D., Picayune; W. E. Lotterhos, M.D., Jackson

Alternate Delegates to AAGP—W. M. Dabney, M.D., Crystal Springs; John B. Howell, Jr., M.D., Canton

Directors (by District)

1. Millard Jensen, M.D., Lucedale; 2. Max L. Golden, M.D., Laurel; 3. Walter W. Crawford, M.D., Tylertown; 4. Louis F. Rittelmeyer, M.D., Jackson; 5. Earl L. Laird, M.D., Union; 6. Toxey E. Hall, M.D., Belzoni; 7. Oscar E. Ringold, M.D., Cleveland; 8. John C. Longest, M.D., Starkville; 9. John C. Powell, M.D. Senatobia; 10. Frank K. Tatum, M.D., Tupelo.

Executive Secretary—Miss Louise Lacey, P.O. Box 1435, Jackson, Miss.

MEMBERSHIP

There are now 178 members of the Mississippi Academy of General Practice. There are more than 21,000 members of the AAGP. For anyone interested in joining the Academy, here are the requirements for *active* membership.

1. The applicant must be a graduate of an approved medical school, and must be engaged in the general practice of medicine.

2. He must have completed one year's internship, followed by one of the following:

A. Two years' approved residency;

B. One year's approved residency, and two years' general practice; or

C. Three years' general practice.

Graduates of approved medical schools not eligible for active membership may apply for *associate* membership.

Active members are elected for three-year terms. Re-election is contingnt upon completing 150 hours of postgraduate study, at least 50 hours of which must be spent in attendance at formal medical school or Academy courses. (These are designated as Category I in official programs.)

Any physician who qualifies and wishes to join the Academy may obtain further information and application blanks by writing the Executive Secretary or the District Director.

NEWS BITS

The AAGP Board of Directors made this year's committee appointments recently. The following Mississippi Academy members were appointed to National Committees: Dr. Wm. E. Lotterhos of Jackson, chairman of the Publication Committee of the *Journal GP;* Dr. S. S. Kety of Picayune, chairman of the Rural Health Committee; and Dr. Louis F. Rittelmeyer of Jackson, a member of the Joint Residency Review Committee for General Practice (3-year term).

The following Academy members were elected to offices in the M.S.M.A. at the annual meeting last May: Dr. John B. Howell, Jr., of Canton, alternate delegate to A.M.A. and Councilor of District 5; Dr. Guy T. Vise of Meridian, Councilor of District 6; Dr. E. L. Bolton of Biloxi, Exhibits Committee; Dr. C. P. Crenshaw of Collins, Rural Health Committee; Dr. W. H. Anderson of Booneville, fraternal delegate to Arkansas; and Dr. R. L. Wyatt of Holly Springs, fraternal delegate to Tennessee.

At the May meeting of the Board of Directors of the Mississippi Academy of General Practice the Board voted to pay one-half the subscription price of the *Journal* GP for all seniors at the University of Mississippi School of Medicine who want to take the *Journal.* The board also voted to donate $15.00 to the Medical School Library, for the purchase of books, in memory of Dr. Robert M. Seawright who died last February.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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W. H. ANDERSON, M.D. .... Editor-in-Chief
MILDRED P. ANDERSON .... Assistant Editor

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John T. Bryan, M.D. .... Meridian, Miss.
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The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this Journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 104 Hospitality Street, Booneville, Mississippi.

§

AGP SEMINAR

Congratulations to the Academy of General Practice on the fine seminar held June 7-8. These courses will no doubt grow in attendance and in value.

NORTHEAST MEDICAL MEETS

At the second quarterly session of the Northeast Mississippi Medical Society which was held in Corinth on June 5, Dr. Stanley Hill of Corinth read an excellent paper on fractures of the forearm, ably discussed by Drs. V. B. Philpot and E. S. Thomas.

Dr. W. W. Pearson of West Point presented a paper on cholelithiasis in young adults, offering a number of cases which made it very certain that gallstones are not limited to the "fair, forty, and fat." The cause of gallstones was discussed, typhoid being essentially ruled out since this disease is now rare, although disease of the gallbladder has not been reduced.

Dr. H. C. Ricks of Jackson, president of the State Medical Association, discussed the present membership in our state association urging the importance of every doctor belonging to the association that fine service offered by the association may be fully utilized. He pointed out that the membership is off somewhat just at this time.

Dr. R. L. Sanders of Memphis was the guest essayist, his subject being "Diseases of the Biliary System." Dr. Sanders is a master in the field of gallbladder disease. He was a general practitioner and a general surgeon for many years operating a small hospital. He was assistant to Dr. Will Mayo for some time, but is known across the nation for his surgical skills, especially in gallbladder disease. It is always good to hear him.

AS THE LAY UNDERTAKING GROWS

Everywhere medical education is on the up and up. It is common to hear from the laity, "The medical profession is making the greatest progress of all." Postgraduate courses are now being made available to every practitioner, are being carried in many instances right out to the doctor's local hospital and community. In the premedical and regular four-year course the training is becoming more thorough all the time. Magazines and newspapers are due much credit for enlightening and lifting lay standards for medical service. *Today's Health* is a beacon light for the laity and even for doctors. It puts scientific information in understandable form which is directly helpful to every doctor. We doubt if the medical profession in general realizes the value of this publication. We recommend that every doctor read and keep this little health magazine on his waiting room table.

News and Comment

PRESIDENT OF THE MID-SOUTH ASSEMBLY

Dr. L. W. Nabers

Luke Waldrep Nabers, M.D., was born in Red Bay, Alabama, February 13, 1903. Graduated from the University of Cincinnati, Ohio, in 1924. Served internship at Hillman Hospital, Birmingham, Ala., 1924-1925. On Surgical Staff at Jackson Memorial Hospital, Miami, Florida, three months each year of 1926 and 1927. Surgical Fellowship at Mayo Clinic, Rochester, Minn., 1928 to 1930, inclusive.

Has practiced in Morristown, Tennessee, since 1933, specializing in surgery. Built Nabers Clinic, Morristown, Tennessee, in 1936, which he re- Hamblen Hospital, Morristown, Tennessee.

Dr. Nabers is a member of the following medical societies: Tennessee State Medical, A.M.A., cently sold. Is now on the staff of the Morristown-Southern Medical, Southeastern Surgical Congress, International College of Surgeons, and American College of Surgeons.

Married Clara Ellen Eldredge in 1924 and has one son, Dr. Clarence L. Nabers, practicing dentistry in Florida.

The Mid-South will have safe piloting under Dr. Nabers this year.

AT STATE HELM

Dr. H. C. Ricks

Dr. H. C. Ricks, veteran public health official and leader in organized medicine in Mississippi for many years, became president of the Mississippi State Medical Association at the close of the annual session in Jackson in May.

STATE MEETING SHOWS RECORD ACHIEVEMENT

The Mississippi State Medical Association centennial meeting opened with the dedication of our new $150,000 central office headquarters building, containing 4,400 square feet of floor space.

More than 200 persons attended the dedication ceremony. Loudspeakers were set up on the lawn in front of the building which is located near the site of the new University Medical Center. A white ribbon stretched across the entrance and the climax of the ceremony came when Dr. Elmer Hess, A.M.A. president, and Dr. S. Lamar Bailey, president of the Mississippi Association, jointly cut the ribbon with gold scissors.

"Mississippi medicine is on the march," said Dr. Bailey in his dedication address. "In the past decade, more than 70 new hosptals have been constructed in Mississippi, giving the state one of the most complete and easily accessible networks of hospitals in the nation."

"This new building," Dr. Bailey added, "serves as a market place of professional ideas and administrative service to the public and profession alike . . . . It is a lasting symbol of service, a tangible reminder of your doctor's dedication to you, not a monument, but a beacon which says every minute of the day and night that this is medicine in Mississippi—that is a symbol of service."

Dr. Hess and Dr. George Lull, secretary-general manager of the A.M.A., both addressed the Mississippi House of Delegates.

Dr. Hess pointed out the importance of doctors working at the county medical society level.

He strongly cautioned against petty jealousies within the profession, and said that the fundamental principle behind all of medical ethics is "for all of us to take care of sick people." He also touched on the importance of the work of reference committees, both at the state and national level, to organized medicine.

Dr. Lull informed members of the House of some of the duties and functions of the A.M.A. Washington office, and reviewed some of the national legislation affecting medicine and the profession. He urged every physician to get better acquainted with his own senator and congressmen, and to speak out when proposed health legislation affects his own community.

Dr. George E. Twente reported that four years of consecutive and progressive increase in membership has resulted in a cumulative gain of 461 members and a net growth of 54 per cent since 1951. "The attendance at annual meetings has increased from about 400 during 1951 and 1952 to about 800 at present. The last two annual meetings exceeded 825," he said.

In his report to the House, Dr. Guy T. Vise, Meridian, chairman of the Council, urged establishment of a grievance committee at the state level, consisting of not less than seven nor more than nine members appointed by the President.

"The state grievance committee would have original jurisdiction in those matters in which the component society has declared itself incompetent and in matters which it initiates on its own motion. In all other matters, it will have only appellate jurisdiction. It will never exercise a disciplinary function, having authority to investigate, recommend, and, where necessary, prefer charges. Basically and generally, the committee will function within the framework of the A.M.A. guides for medical society grievance committees," he averred.

On the final day of the session at Jackson, Dr. Howard A. Nelson, a 44-year-old general practitioner from Greenwood, was chosen president-elect. He will succeed Dr. H. C. Ricks, who was inducted this year as state president.

FIFTY-YEAR CLUB CONVENES

The Fifty-Year Club, State Medical Association, convened on May 8, Heidelberg Hotel, Jackson, Miss.. for a luncheon meeting with Dr. J. K. Avent, Grenada, host.

Among several guests who brought greetings, Mr. C. P. Loranz announced the plans for the celebration of the Golden Anniversary of the Southern Medical Association at the forthcoming fall meeting in Washington, spoke on Mississippi's contribution to the organization and the life of the Association. Delving briefly into the history of the Association with its organization in Chattanooga, Tenn., October 2-3, 1906, Mr. Loranz stated that the late Dr. W. W. Crawford of Hattiesburg helped to draft the constitution and by-laws and served as the first member of the Council from Mississippi. He cited, in succession, the other Council members from the state: Dr. D. W. Jones (now residing in Jackson), Dr. W. S. Leathers, Dr. Felix J. Underwood, Dr. H. F. Garrison, and Dr. J. P. Culpepper, the current member.

Dr. Avent then turned the meeting over to the president, Dr. W. H. Frizell, who called on the secretary, Dr. Felix J. Underwood, for his report.

Dr. Underwood reported that 134 fifty-year certificates have been issued to date, 72 members are now living, 6 certificates have been awarded since the last meeting, and 4 members had died since the last meeting. The recently deceased members included Dr. James Walter Lucas, Jackson; Dr. William Douglas Smith, Senatobia; Dr. William Alexander Johns, Corinth; and Dr. Thomas Wang Huey, Jackson. Certificates awarded since the last meeting went to Dr. Thack Grant Hughes, Clarksdale; Dr. William Henderson Banks, Philadelphia; Dr. James Aylmer Slack, Friars Point; Dr. Andrew Monroe Wynne, Merigold; Dr. Benton Zacharia Welch, Biloxi; and Dr. James Ira Woodward, Picayune (in proeess).

The following officers were unanimously elected for the ensuing year: President, Dr. W. H. Frizell; secretary, Dr. Felix J. Underwood; vice-president, Dr. B. L. Crawford, Tylertown.

SOUTHEASTERN SURGICAL CONGRESS 1957 PRIZE SCIENTIFIC PAPER AWARD

The Southeastern Surgical Congress announces its Annual Prize Scientific Paper Award for 1957. The best unpublished contribution on surgery or allied subjects will be awarded $100.00 and expenses for the author to attend its next annual meeting in St. Petersburg, Florida. For further information write A. H. Letton, M.D., Chairman, Scientific Paper Award Committee, 478 Peachtree St., Atlanta, Ga.

SNAVELY APPOINTED

Dr. J. Robert Snavely has been appointed assistant dean of the University of Mississippi School of Medicine. Dr. David Pankratz is dean of the school and director of the University Medical Center.

Dr. Snavely is professor and chairman of the department of medicine and will continue in that capacity as well as functioning as assistant dean.

Before coming to the University Medical Center when the new four-year school opened in 1955, Dr. Snavely was associate professor of medicine at Tulane University. He is a graduate of Grinnell (Iowa) College and the University of Chicago School of Medicine.

PSYCHIATRIC MEETING

The Mid-Continent Psychiatric Association is holding its annual meeting in the resort town of Hot Springs, Arkansas.

The time: Friday, Saturday and Sunday, September 21, 22 and 23, 1956.

The place: Velda Rose Motel, Hot Springs, Arkansas.

Local hosts, members of the Arkansas Psychiatric Society, have been enthusiastically planning and preparing for a meeting which will include such interesting and outstanding speakers as Dr. Nathan W. Ackerman, Columbia University, New York City; Dr. Ewing H. Crawfis, Mental Hospital Administrator, Cleveland, Ohio; Dr. L. N. Judah, VA Hospital, North Little Rock, Arkansas; Dr. William P. Kolb, Arkansas State Hospital, Little Rock, Arkansas; Dr. Jules Masserman, Northwestern University Medical School, Chicago, Illinois; Dr. Richard C. Proctor, Bowman Gray School of Medicine, Winston-Salem, North Carolina; Dr. William G. Reese, University of Arkansas School of Medicine, Little Rock, Arkansas; Dr. Terry C. Rodgers, Little Rock, Arkansas; Dr. Martin L. Towler, University of Texas School of Medicine, Galveston, Texas; Dr. J. P. Whisnant, Mayo Clinic, Rochester, Minnesota; and Dr. Charles D. Yohe, Hot Springs, Arkansas.

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The American College of Gastroenterology announces that its Annual Course in Postgraduate Gastroenterology will be given at the Roosevelt Hotel in New York City, on 18, 19, 20 October, 1956.

The course will again be under the direction and co-chairmanship of Dr. Owen H. Wangensteen, professor of surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator and Dr. I. Snapper, director of Medical Education, Beth-El Hospital, Brooklyn, N. Y., who will serve as medical co-ordinator. Drs. Wangensteen and Snapper will be assisted by a distinguished faculty selected from the medical schools.

For further information and enrollment write to the American College of Gastroenterology, Department P.G., 33 West 60th Street, New York 23, N. Y.

SYMPOSIUM FOR GP AND TB

The fifth annual Symposium for General Practitioners on Tuberculosis and other Chronic Pulmonary Diseases will be held in Saranac Lake, New York, from July 9 to 13, 1956. It is approved for 26 hours of formal credit for members of American Academy of General Practice.

This five-day course is designed particularly for general practitioners and presented over a period short enough so that they may readily attend. Many of the sessions are informal panel discussions with ample opportunity for questions from the audience.

The registration fee for the Symposium is $40.00. Further information and copies of the program can be obtained by writing Dr. Edward N. Packard, General Chairman, Symposium for General Practitioners, P. O. Box 262, Saranac Lake, N. Y.

NEW STATE BOARD OF HEALTH BUILDING?

Our State Board of Health has made a wonderful record for Mississippi. It has outgrown its present quarters and is badly in need of a new home. It so much deserves new quarters. The Old Capitol needs to be restored for its historic value. We believe the medical profession should be interested in seeing the State Board of Health have new quarters on the Medical Center grounds. Dr. Underwood and his staff have well earned this facility. We trust that this dream on the part of many may soon be a reality.

PAN-PACIFIC SURGICAL ASSOCIATION

The Seventh Congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii, November 14-22, 1957. All members of the profession are cordially invited to attend and are urged to make arrangements as soon as possible if they wish to be assured of adequate facilities.

Further information and brochures may be obtained by writing to Dr. F. J. Pinkerton, director general of the Pan-Pacific Surgical Association, Room 230, Young Building, Honolulu, Hawaii.

ANNOUNCEMENTS

Ray O. Noojin, M.D., announces the removal of his office to 2661 Tenth Avenue South, Birmingham 5, Alabama. Practice limited to diseases of the skin.

Frank A. Latham, M.D., certified by the American Board of Psychiatry and Neurology, Inc., in Psychiatry, announces the opening of his office for the practice of neuropsychiatry, 41 North Somerville Street, one block north of Memphis Eye, Ear, Nose and Throat Hospital, Memphis, Tennessee.

RESIDENCE IN PATHOLOGY
Open—July 1, 1956
Salary first year—$250 per month (no Maintenance)
Write:
DR. WILLIAM HARE
Department of Pathology
University of Mississippi Medical Center
Jackson 6, Mississippi

IN APPRECIATION

To the Members of the Past Presidents Club
Mississippi State Medical Association
Jackson, Mississippi
Gentlemen:

I thank you, most sincerely, for your kind and thoughtful remembrance of me and for the message by telegram conveying to me your thoughtful remembrance of me that I received on May 12, 1956.

I was away from my daughter's home in Wilmington, Delaware, visiting my other daughter and her husband in Brooklyn, New York, when your telegram arrived, so I did not receive the telegram until my return to Wilmington.

I hope that all of you had a most enjoyable meeting together recently. I am sure that all of you enjoyed to the highest degree your meeting together and renewing the happy associations of the past.

It is my greatest regret that I was not able to be present with you on this happy occasion of your reunion and to renew the most happy associations of the years of the past that I have always enjoyed to the highest degree.

The happy memories of the past when I was able to be with all of my very dear friends in the Mississippi State Medical Association and especially with those dear friends, the members of the Past Presidents Club of which I am a member, are ever in my mind and are like beautiful flowers scattered along life's pathway to make my journey down this pathway easier for me.

Again thanking you, most sincerely, for your message and thoughtful remembrance of me and with highest regards and best wishes for all of you.

Sincerely,
John W. D. Dicks, M.D.

FIFTY-YEAR CLUB BIOGRAPHICA

BENTON ZACHARIAH WELCH

Benton Zachariah Welch, son of Timothy Ransom and Tobitha Gieger Welch, was born December 18, 1878 in Reddock, Mississippi.

He attended Millsaps College and Memphis Hospital Medical College (now the University of Tennessee) and received his medical degree from Tulane University, New Orleans in May, 1907.

Following graduation, Doctor Welch located at Woolmarket and in 1915 he moved to Biloxi where he has continued to practice since that time.

Doctor Welch has been active in church and civic work in Biloxi for many years. A member of the First Methodist Church, he has served on the board for 39 years.

A testimonial dinner was given by the Biloxi Lions Club for Doctor Welch on April 11, 1956, honoring his fifty years' service as a physician. He has been a member of the Lions Club for 32 years and served as the first president. A plaque was presented to Doctor Welch by Dr. D. L. Hollis of Biloxi.

On April 18, 1956, Doctor Welch was honored with lifetime membership in the Fifty Year Club.

In the words of the president of the State Medical Association—the passing of the years has not dampened Doctor Welch's enthusiasm to maintain his professional education and to bring to his patients the latest and best in medical service—he typefies dedication to service.

DEATHS

DR. W. H. REID

Services were conducted at the First Baptist Church in Pontotoc on March 1 for Dr. Warren Harrill Reid, a prominent physician of Calhoun and Pontotoc counties for nearly half a century.

Dr. Reid, who was 86 years of age, died in a St. Louis, Mo., hospital where he was admitted after he fell and broke his hip about February 13. Prior to that he had been in a nursing home.

Dr. Reid was born in Calhoun County where he taught school and studied medicine for a number of years. He later moved to Toccopola, where he was a practicing physician for some 35 years.

He was married to the former Alice Winona Lee of Calhoun County.

Dr. Reid retired from practice about five years ago and he and Mrs. Reid moved to Pontotoc to make their home. She died in 1954.

He is survived by one son, Andrew Knox Reid of Mt. Vernon, Ill. Another son, Dr. Winfred Reid, was killed in an automobile wreck several years ago. He also leaves a brother and a sister.

DR. JESSIE E. ADAMS

Services for Dr. Jessie Earl Adams, physician of Boyle for many years, were held at the family home in Boyle, on March 1.

The Rev. J. H. Holder, Jr., the Rev. J. F. McCrary of Boyle, and the Rev. R. A. Bolling of Cleveland officiated.

Dr. Adams, who was 73, died at the King's Daughters Hospital in Greenville after a three-week illness. Born in Kemper County, Miss., he was graduated from the former A. and M. College at Starkville and the Vanderbilt School of Medicine.

He began practice in Boyle in 1909 and had continued his practice through the years. He served on the board of stewards of the Methodist Church for 30 years, on the school board for 25 years, and for a number of years was a member of the board of aldermen.

He was past president of the Clarksdale and Six Counties Medical Society, past-president of Mississippi State Alumni Association. For 34 years he was the Illinois Central Railroad physician, and served four consecutive terms as Bolivar County supervisor. He was a Mason and a member of the Lee Guards of Mississippi State. He was the oldest physician in Bolivar County.

He leaves his wife, Mrs. Hattie Smith Adams of Boyle; a son, Dr. J. E. Adams of West Africa; a daughter, Mrs. Billy F. Flowers of Winona, and four grandchildren.

DR. GEORGE W. GOOGE

Services for Dr. George William Googe, who died May 28 were conducted at the Rienzi Methodist Church. Burial was in Henry Cemetery under the direction of McPeters Funeral Home.

Dr. Googe, who was 79, had served the Rienzi community as a physician for more than fifty years. His career began in "horse and buggy" days and he sometimes accepted hams, chickens, eggs and other farm produce as payment for his services.

He was a steward of the Methodist Church, a 32nd degree Mason, a Scottish Rite Mason, and a Royal Arch Mason.

Two years ago, his neighbors staged a "Dr. Googe Day" in Rienzi to honor the veteran physician.

Survivors include a son; three daughters including Mrs. Louise Googe of Rienzi; a brother, Virgil E. Googe of Fulton; a sister, Mrs. S. L. Dozer of Fulton; and three grandchildren.

DR. W. J. PENNINGTON

Services were held at the Decatur Baptist Church for Dr. William Jackson (Dr. Jack) Pennington, widely known Newton County physician who died at his residence in Decatur April 11 following an illness of 18 months. The doctor had practiced 46 years.

Dr. Pennington, a Baptist, held membership in the American, State and East Mississippi Medical associations and had served as Newton County health officer as well as examining physician for selectees in both World Wars.

Dr. Pennington is survived by his wife, Mrs. May Robertson Pennington; four daughters, Miss Kathleen Pennington, Decatur, Mrs. H. E. (Frances) Hart, Nashville, Tenn., Mrs. Bert (Snooks) Evans and Mrs. Austin (Ruby) Johnson, Decatur; two sons, James and Charles Pennington, Decatur; five grandchildren; four sisters, Mrs. Georgia Spivey, and Mrs. Mattie Spiver, Decatur; Mrs. Lydia Spivey and Mrs. R. A. Armstrong, Meridian; two brothers, S. T., San Antonio, Texas, and Dr. L. E. Pennington, Jackson, and other relatives.

DR. W. B. LEWIS

Dr. W. Bryant Lewis, 64-year-old Methodist medical missionary and former resident of Jackson, died at the home of his daughter in Houston, Texas.

He was the son of a Mississippi Methodist minister and attended Millsaps and Vanderbilt universities.

Dr. Lewis practiced medicine in Leland and was formerly associated with Gamble Bros., Archer in Greenville.

He became a missionary through Galloway Memorial Methodist Church and served in the Belgium Congo for more than 30 years.

He built Lewis Memorial Hospital in Tunda Village in the Belgium Congo.

His wife, the former Zaidee Nelson of Jackson, died in 1955.

Dr. Lewis returned to the United States after her death and had made his home with his daughter.

Survivors include a daughter, Mrs. Charles Boyd of Houston, Texas; two sisters, Mrs. D. W. Jones and Mrs. C. R. Ridgway, both of Jackson; and three grandsons.

TYRONZA MEETING GREAT DAY

The L. H. McDaniel meeting at Tyronza, Ark., on May 24 was a significant occasion. More people were present at this meeting than the population of the town and they came from the four corners of the United States and a few from abroad. It is hard to estimate the value of this type of meeting. It enables one profession to look in on the doings of another. It helps the laity to understand the medical profession, the businessman to appraise the man of science, and science to recognize its dependence upon men of means. It makes plain that health assets must be balanced by physical, mental, and spiritual strength if they serve best in human affairs. Every man has a job to do, and every part is important in the forward march of our civilization. We congratulate Dr. McDaniel for this unique meeting of much renown and value.

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1714 Exchange Building
Memphis, Tenn.

ROENTGEN RAY examination in ophthalmological and otolaryngological cases should be performed, not only as a frequent aid in diagnosis, but also in cases where the diagnosis is uncertain and obscure.

Roentgen rays were discovered by Professor Wilhelm Konrad Roentgen, a German physicist, in 1895, and two years later, an ophthalmologist named Clark attempted the first practical application in a specialty, at which time he attempted a crude localization of an intraocular foreign body. Since this time there is not a single branch of medicine that does not owe its rapid progress partially to x-ray; yet we are afraid that eye, ear, nose and throat specialists are not exploiting x-ray to its full advantage to obtain the best results. The clinician should be aware of its benefits and limitations.

It is well at this time to stress just how very important it is to correlate the clinical findings with the x-ray findings. The radiologist must not be made to depend merely on a set of pictures without any indication as to what is expected, or what the patient's symptoms may be; and neither must the clinician be dependent on symptoms and clinical findings without the advantages of x-ray diagnosis. In far too many instances, the use of x-ray is requested only in the most obscure or most serious cases. In the past few years, with more requests for x-ray examination, the clinician is confronted with the realization that his results are so much more improved that x-ray has become indispensable to him. X-ray pictures are a permanent record and often give immediate and correct diagnosis, and afford a comparison for progress or remission of the disease.

All skulls vary in calcium content and for this reason, multiple roentgenograms of the same position are much more enlightening. It is our usual routine to make three antrum views, varying in density so that one is average, one darker than average and one lighter than average.

The poor quality of head x-rays is due to several reasons, the principal being that 22 bones make up the skull and very accurate position is absolutely necessary to rotate unwanted bones out of the field that is to be viewed. A good example is interference that can be caused by the petrous portion, in the Waters position. Another factor is too much delay from the time of positioning to actual exposure. In such cases, the patient may change position or during the exposure may shake the head while breathing, with blurring of the completed picture and this can lead to error in diagnosis. Equally important is the processing of the roentgenogram, consideration of temperature, age of solution, etc.

THE ORBIT

The orbital cavities are generally the same size on both sides. If a child has an eye removed early in life, after a few years one can see that the orbital cavity is smaller on the post-operative side. Small orbits occur bilaterally in cases of anophthalmos.

Enlargement of the orbit is most frequently due to a large, longstanding, benign intra-orbital tumor. This tumor may show increased density of the entire orbit, or absence of density, and if the tumor has been present long enough and is large enough to cause increase in the size of the orbit, there is usually increased soft tissue density.

FRACTURES OF THE ORBIT

X-ray is the most useful examination in distinguishing fractures of the orbit. Any injury around the orbit should be x-rayed, for swelling of soft tissue frequently prevents diagnosis of fracture of the orbit until the swelling disappears; and usually it is then too late to correct it by less complicated surgery. Usually fractures of the rim of the orbit are a direct result of a blow to the bone. Fractures of the floor of the orbit may be due to direct or indirect force. Pfeiffer has reported fracture of the floor of the orbit due to a direct blow on the eyeball resulting in a marked enophthalmos, without injury to the eyeball.

If a fracture or dislocation of some portion of the orbit is enough to produce diplopia with restricted movement of the eyeball or enophthalmos and downward displacement of the orbital rim, it is our opinion that superficial adjustments are uncertain and frequently insufficient to correct functional and cosmetic defects.

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*Presented before the Section on Eye, Ear, Nose and Throat at the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

If there is a fracture of the orbit with no displacement, only slight diplopia, slightly restricted movement of the eyeball in any direction, no enophthalmos, and only slight exophthalmos from swelling of the contents of the orbit, such fracture dislocations in the inferior rim of the orbit may need no surgical treatment. In a case of recent injury with doubt whether to operate or not, it is safest to operate because it will not make the patient any worse and it will remove a slight cosmetic and functional disability that cannot be corrected as satisfactorily after union.

If an Anthony-Fisher intranasal sinus water pressure balloon is used to reduce a recent fracture of the inferior orbital rim, zygomatic arch and/or the floor of the orbit, a roentgenogram should be made at the end of 24 hours to see if the displaced fractures have been reduced to proper position. Usually if the zygomatic arch is fractured and displaced, the balloon reduction will reduce the zygomatic arch fracture to normal position indirectly by reducing the displaced zygomatic bone and anterior and temporal wall of the superior maxilla. Also, if there is an old healed fracture, use the nose-chin, posterior-anterior position (Waters position) and if an Anthony-Fisher intra-maxillary sinus double tube, stainless steel (SMO 316*) jack is used, we advocate repeating roentgenograms at the end of 24 hours to see if the fractures have been reduced to proper position to correct enophthalmos, diplopia or other cosmetic and functional defects.

THE OPTIC FORAMEN

Pictures of the optic foramen are very important in ophthalmological x-ray diagnosis because when there is enlargement of the optic foramen on one side, there is likely to be a tumor of the optic nerve. One might see necrosis of the optic foramen, and that would be an indication of malignancy of the bone around the foramen. Fracture of the optic foramen is very rare, for the apex of the orbit is so well protected. However, it has been reported, and usually there is severe injury to the optic nerve, so if there is an injury of the orbit with loss of vision, optic foramen pictures should be made to see if a fracture is present.

The congenitally small optic foramen usually causes no trouble unless the patient has posterior ethmoid sinus, or sphenoid sinus infection, causing swelling of the optic nerve. When this occurs, congenitally small foramen can cause an acute constriction, resulting in a retro-bulbar neuritis from partial strangulation of the circulation. This has been brought out clearly by White and MacMillan, but it is a rare condition. Unilateral smallness of the optic foramen occurs most frequently in children who have enucleation of the eye early in life. The correct picture of an optic foramen places it in the lower outer quadrant of the orbit.

SUPERIOR ORBITAL FISSURE

The superior orbital fissure opens in the middle cranial fossa and transmits the third, fourth and sixth nerves, ophthalmic vein, orbital branch of the middle meningeal artery, sympathetic fibers from the cavernous plexus, the sympathetic root of ciliary ganglion, and sometimes the sensory root of the ciliary ganglion. These important structures make it necessary to have a diagnostic picture.

If the x-ray shows abnormal enlargement of the superior orbital fissure, and surgery is indicated, a neurosurgeon should explore the patient by transfrontal route. With this exposure, he can see directly what he is operating on and is less likely to injure normal structures in the apex of the orbit during orbital exploration or removing a tumor from the apex.

There have been only two good papers written on the superior orbital fissure. One is by G. J. Baylin and H. D. Kerman and one by the late Karl Kornblum and George R. Kennedy. This classification is given in the following tables:

Classification of the Normal Sphenoidal Fissure on the Basis of Configuration, as Determined from a Study of 157 Anatomical Specimens:

Drs. Karl Kornblum and Geo. R. Kennedy

		Per Cent
Normal fissure	63	40.12
Bulbous type	25	15.92
Long, narrow type	12	12.10
Dumbbell type	19	12.10
Cone-shaped type	17	10.82
Unequal fissures	14	8.91

Classification of the Normal Sphenoidal Fissure as Determined from Study of 494 Roentgen Examinations of the Skull:

Normal fissure	189	38.26
Bulbous type	72	14.57
Long, narrow type	58	11.74
Dumbbell type	46	9.31
Cone-shaped type	86	17.41
Unequal fissures	43	8.70

Analysis of the Cause of Poor Visualization of the Sphenoidal Fissures:

Blurring due to motion	3
Improper position of head	12
Underexposure film	6

Incidence of Various Roentgen Manifestations of Intracranial Tumor Occurring in a Series of 446 Verified Cases:

Deformation of the sella turcica	64.6
Convolutional atrophy	8.8
Calcification of the tumor	6.5
Widening of the sutures	4.6
Local bone erosion	2.9
Local hyperotosis	1.8
Lateral shift of the pineal body	1.8
Widened diploic channels	0.2
Sphenoidal fissure deformity	27.9

A Recent Series of Verified Brain Tumors Showing the Occurrence of Sphenoidal Fissure Deformity in Relation to the Location of the Tumor. Also the Occurrence of Unilateral and Bilateral Involvement:

		Sphenoid Fissure Deformity	*Unilateral*	*Bilateral*
Parasellar tumors	12	8	7	1
Posterior fossa tumors	15	5	3	1
Frontal lobe tumors	13	4	3	1
Pituitary tumors	10	3	1	2
Intra-orbital tumors	2	2	2	0
Tumors of Sphenoid Sinus	2	2	1	1
Temporal lobe tumors	6	1	1	0
Parietal lobe tumors	8	1	0	1
Supresellar tumors	3	0	0	0
Ventricular tumors	2	0	0	0
Occipital lobe tumors	2	0	0	0
	—	—	—	—
	75	26	18	8

The superior orbital fissure is an easy picture to take and only shows correctly when a picture of the frontal sinus is made in the nose-forehead position. It is important that careful examination of the superior orbital fissures be made, in every case, where posterior orbital contents and the anterior brain might be involved.

EXOPHTHALMOS

The most useful x-ray diagnosis in ophthalmology is to try to determine the cause of exophthalmos, because the history, symptoms and examinations frequently fail to tell the ophthalmologist how long this space-taking lesion of the orbit has existed, the location and type of lesion, and whether or not it may be a soft tissue tumor, or a bony tumor.

Bony tumors of the orbit, as a rule, can be outlined as to their location and size with x-ray, for there is enough increased density to make out the tumor. However, in most soft tissue tumors, there is a density so low that the outlining of the tumor is nearly impossible in reference to the exact size and location; yet some idea may be obtained. In some thick soft tissue tumors, that have existed for a long time, there is a slightly increased density of the region where the soft tissue lesion occurs. Benign soft tissue tumors show in x-ray slightly better than malignant soft tissue tumors.

Mucocele is the most deceptive x-ray diagnosis in exophthalmos. Instead of increased density occurring in the sinuses involved with mucocele, usually there is a decrease, because the pressure of the mucocele within the sinus causes some decalcification of the sinus walls. Therefore, a decrease of the density is misleading unless one realizes this and is looking for it. It occurs more frequently in the frontal sinuses, next, the ethmoid sinuses, and last, the antrum sinuses. Of course, if there is a mucocele causing exophthalmos with a marked destruction in the roof of the orbit, the diagnosis may still be missed, but if the mucocele destroys the rim of the orbit, particularly the upper rim on the nasal side, the diagnosis is made earlier. If the x-ray picture shows destruction of the bone at the apex of the orbit, as the reason for widening of the superior orbital fissure, or the optic foramen, there is suspicion of malignancy until proved otherwise.

You will notice in the table by Pfeiffer which mos is due to mucocele of the paranasal sinuses follows, that the most frequent cause of exophthal- and to one who has not looked up this table, it will be surprising. If there is a space-taking lesion in the orbit, causing unilateral exophthalmos, and the ophthalmologist cannot palpate a tumor or suspect mucocele, we think the neurosurgeon should do the exploratory operation by transfrontal route.

Etiology and Frequency in 200 Successive Cases of Exophthalmos, by R. L. Pfeiffer, M.D.

CAUSES OF EXOPHTHALMOS:

	No. of Cases	*Post-Roentgenographic Findings*	*Indicative Roent. Findings*	*Suggestive Roent. Findings*
Retention cyst arising in paranasal sinus (mucocele)	18	18	16	1
Pseudo tumor or granuloma of the orbit	16	2	0	1
Meningioma	14	14	12	2
Craniostenosis	14	14	14	0
Hyperthyroidism	12	1	0	0
Cavernous hemangioma	12	10	0	8
Oculomotor paralysis	9	0	0	0
Dermoids and Epidermoids	8	7	4	4
Sarcoma, various types	8	7	0	2
Neurofibromatosis	7	7	7	0
Deformity or asymmetry of the orbit	7	7	5	2
Glioma of the optic nerve or chiasm	6	6	6	0
Arteriovenous aneurysm	6	4	3	1

Malignancy of paranasal sinuses	5	5	2	2
Mixed tumor of the lacrimal gland	5	2	0	2
Sacculated aneurysm of internal carotid artery	4	4	3	1
Abscess of the orbit	4	3	0	2
Ethmo-orbital osteoma	3	3	3	0
Paget's disease	3	3	3	0
Congenital colomboma cyst of eyeball or retinocele	3	2	0	0
Basal-cell epithelioma	2	2	0	2
Neuroma	2	2	0	0
Myopia	2	1	0	1
Gumma	2	1	0	0
Xanthomatosis	2	2	2	0
Blood cyst of orbit	1	1	0	0
Myeloma	1	1	1	0
Trichinosis	1	0	0	0
Osteitis fibrosa cystica	1	1	1	0
Lipiodol in orbit	1	1	1	0
Subdural hematoma	1	1	1	0
Undiagnosed	20	7	0	3

A. B. Reese has published excellent articles on exophthalmos and some of his tables are also listed, as follows:

Exophthalmos from Lesions Primary in the Orbit, by A. B. Reese, M.D.

Hemangioma (5 with no exophthalmos)		25
Pseudotumor (2 with no exophthalmos)		18
Meningioma		13
Dermoid and epidermoid cysts (6 with no exophthalmos)		10
Sarcoma—		
Lymphosarcoma	5	
Rhabdomyosarcoma	2	
Osteogenic sarcoma	1	
Fibrosarcoma	1	
Myosarcoma	1	
	—	10
Neurogenic tumors—		
Neurofibroma (4 no exophthalmos)	8	
Glioma of optic nerve	1	
Neurilemmona (Neurinoma, Schwanoma)	1	
	—	10
Mixed tumor of lacrimal gland		9
Lymphoma		3
Hematoma		3
Osteoma		1
Xanthoma		1
Fibroma (from tendon sheath)		1
Osteitis fibrosa cystica		1
Lipoma (no exophthalmos)		1
Lymphangioma (producible exophthalmos)		1
Zenker's waxy degeneration of rectus muscle		1
Tuberculous dacryoadenitis		1
Total		109

Exophthalmos from Lesions Adjacent to the Orbit

From new growths in nasopharynx		19
From new growths in sinuses—		
Antrum	12	
Ethmoids and/or sphenoids	3	
Ethmoids	2	
	—	17
From malignant melanoma of choroid—		
Extension from eye to orbit	2	
Recurrent after enucleation	5	7
	—	
Extension of epithelioma from lower lid into orbit—		
Basal cell (1 no exophthalmos)	3	
Squamous cell	1	
	—	4
Chloroma		1
From newgrowth of hard palate		1
From nose to orbit via tear sac		1
Metastatic carcinoma to uvea with orbital extension		1
Total		51

Exophthalmos from Systemic or Distal Lesions

From metastatic newgrowths—		
From breast (carcinoma)	3	
From suprarenal gland and/or retroperitoneal region (sympathicoblastoma, neuroblastoma)	2	
From thyroid (carcinoma)	1	
From lung (lymphosarcoma)	1	
From tonsil (carcinoma) to orbital bone	1	
From unknown site (carcinoma)	1	
	—	9
Hodgkin's disease:		
to lacrimal gland (no exophthalmos)	1	
to orbital bone (no exophthalmos)	1	
	—	2
Lymphatic leukemia		1
Schuller-Christian disease		1
Gumma		1
TOTAL		14

LOCALIZATION OF INTRAOCULAR FOREIGN BODY

The x-ray, as related to ophthalmic diagnosis, is both important and satisfying in the localization of an intraocular foreign body. This requires a close correlation between the clinical and x-ray findings. Anyone who has dealt with intraocular or intra-orbital foreign bodies recognizes the importance of their exact location, since the treatment or surgical intervention is entirely dependent upon their location. Magnetic or non-magnetic foreign bodies cannot be differentiated in the x-ray picture. If there is some question as to the presence or absence of a foreign body, it is well to use the anterior-posterior (Caldwell) view. After a foreign body has been demonstrated, it becomes a matter of localization by one of the several techniques.

The first satisfactory method of localizing intraocular foreign bodies was reported by Sweet in 1898; soon thereafter he devised a modification very similar to the first and it is still used by some roentgenelogists. It is not very popular, since there are many chances of error, unless Sweet's complete localization equipment is available and the examiner is familiar with the method, using it frequently. When properly done, this is an excellent and very accurate method of localization. In our opinion, it is not any more accurate than Pfeiffer's method, which uses the Comberg contact glass. This method is simple, permits easy calculation and utilizes very inexpensive apparatus. The only special apparatus necessary is a leaded Comberg contact lens, a protractor, a divider and a millimeter rule. Only two exposures are required—one in the anterior-posterior (Caldwell) position, and the other a true lateral one with the affected side applied to the film.

Another simple and easy procedure, though not as accurate as Pfeiffer's, is Yazujian's two-rim gold localizer. A small rim fits the corneo-scleral junction and a larger rim circles the globe close to the eye. If the foreign body is 17 mm. posterior to the large rim of the localizer, the foreign body is usually behind the eyeball. Also if the foreign body is outside the large rim radially it is outside the eyeball. The senior author has modified this gold localizer by placing an extension on the temporal side. The outside surface of this extension is concave, so that the concavity of the wire fits in the external canthus of the eye. It keeps the localizer from rotating too far temporarily while taking the picture. (This localizer is made in two sizes, one for the child and one for the adult.)

In the so-called physiological localization or parallax motion, a film is exposed in the anterior position and in the lateral position. The patient looks up for half the exposure and down for the other half of the exposure on the same film. This is also repeated with the patient looking to the left and to the right. If there is a difference in position of the foreign body in the two pictures, it is usually considered that the foreign body is intraocular. However, a foreign body could be just outside the sclera and the movement then might be the same as if it were in the posterior half of the globe. If the foreign body is exactly in the center of the eye, there is no movement in the two pictures. It is well to make these parallax pictures in all cases as a check after using the other methods first.

It has been advocated that injection of air or oxygen into Tenon's capsule gives an accurate localization, if a picture is made before and after the injection. Displacement of the foreign body in the second picture is accepted as an indication that the foreign body is extraocular. If it is necessary to inject air into Tenon's capsule to get a satisfactory localization, it has the disadvantage of delaying the operation because of the slow absorption of air. Scheie and Hodes state that air in Tenon's capsule sometimes is not completely absorbed for three or four days and that there is danger of a vitreous prolapse until the air is absorbed. Oxygen is more readily absorbed than air.

In every intraocular foreign body examination, bone free pictures (Vogt's method) should be used to demonstrate very small or low density foreign bodies in the anterior segment of the eyeball. An ordinary dental film, held in a hemostat, is placed between the inner canthus and the nose. When pressed toward the back, pictures of the anterior one-fourth of the eyeball can be made.

We advocate taking 5 bone-free pictures with the patient looking up, looking down, to the left, to the right and straight ahead, instead of taking one picture looking straight ahead as advocated by the other writers. Taking these five pictures throws the anterior segments of the eye in the field where the foreign body can be located.

Many an eye has been lost because of improper localization of the foreign body and unnecessary manipulation and operative procedures in an attempt to extract it when an operation was not indicated. Many eyes have been lost because of slipshod methods of localization and the leaving of a foreign body inside the eyeball when it might have been removed. Foreign bodies are too serious for guesswork or inaccurate localization.

There are other points the x-ray will clarify in addition to the fact that the foreign body is or is not in the globe. Thus the size, shape and position of the long axis, and less accurately, the composition of the substance may be revealed. The size of the foreign body may be calculated with considerable accuracy from the x-ray film and the incision for its removal may be made accordingly. The shape is less accurately determined; the direction of the long axis should be known, since the incision might be made through the sclera in the wrong direction and the foreign body thus be wedged crosswise.

In cases where there is doubt as to the composition of the foreign body, the authors have customarily placed before the injured eye a number of materials such as glass, stone, steel, concrete, copper, brass and aluminum for comparison. There is a great variation in the density of foreign bodies in the eye or orbit. The specific gravities are as follows: bone is 1.7 to 2.0; brick 1.4 to 2.2; cement 2.7 to 3.0; coal 1.4 to 1.8; emery 4.0; glass 2.4 to 2.8; marble 2.6 to 2.8; slate 2.6 to 3.3; wood 0.42 to 0.68; aluminum 2.70; calcium 1.34; copper 8.70; gold 19.3; iodine 4.940; slag 2.0; platinum 21.37; magnesium 1.741; manganese 7.42; mercury 13.596; steel 7.86; lead 11.342; silver 10.42; limestone 2.68; ivory 1.83; tungsten 18.6; zinc 7.04; flint glass 5.04; we have found that bottle, lens, plate, windowpane and automobile glass appear to have the same density on x-ray films. If a piece of steel has been in an eye for some time, then the eye may show evidence of siderosis. After many years slow oxidation of steel or copper may reduce the density so that it may be impossible to show it in the x-ray picture. (Such eyes have been x-rayed after enucleation and a foreign body of very low density found.)

It is not possible for every ophthalmologist to own an x-ray machine or to be an expert in interpretation of x-rays. However, it is the duty of every ophthalmologist to familiarize himself with the principles and interpretation of foreign body localization rather than to depend merely on a report by the radiologist or technician. There is the tendency of all technicians and of some radiologists to interpret the findings as intraocular or extraocular when actually it may be a border-line instance which the surgeon should know. The diagnosis must be made by combining the clinical findings with those of the radiology laboratory. Thereby unnecessary surgical procedures frequently may be avoided.

LACRIMAL SAC

X-rays of the lacrimal sac are primarily made to determine the size and shape of chronic mucocele of the lacrimal sac. The shape of a sac is important, for maybe it was injured from spontaneous rupture, after an acute exacerbation of a chronic sac, or it may have been injured from an external opening. There may be an hourglass-shaped sac, and if this occurs, it would be helpful in a dacroyocystorhinostomy to make a larger nasal mucous membrane exposure to take care of this partially contracted sac. Also, if there is a very small sac, one would want to make a larger bony opening to get more mucous membrane of the nose to anastomose to the sac. A picture of the lacrimal sac is of no help, unless it is injected with some iodine oil. Of greatest importance is a diagnosis of obstruction of the common canaliculus, for in this condition injecting iodine oil into the canaliculus above and below does not show in the sac, and one naturally concludes that the common canaliculus is completely obstructed, which is a contraindication to surgery. Iodine oil injected into a normal lacrimal tract is poorly visualized on an x-ray film.

Roentgenograms of all sinuses should be made when there is a chronically infected and obstructed lacrimal duct for oftentimes this condition is associated with chronic infection of the sinuses, particularly the ethmoids, and we believe chronic infection of the sinuses may lead to obstruction of the lacrimal duct, more often than has been published in the past. An exception is obstruction of the lacrimal duct in the new-born which we believe is a congenital membrane obstructing the lower end of the duct.

RETINOBLASTOMA

Every young child's eye with possibility of intraocular tumor on ophthalmoscopic examination should have roentgenograms of low, medium and high density for it has been reported by Dr. Raymond L. Pfeiffer, a most competent ophthalmologist, that 80 per cent of roentgenograms show calcium deposit in the affected eye of retinoblastoma and if calcium deposits are demonstrated in the region of the eyeball, one must consider it retinoblastoma until otherwise proved. We do not know any other tumor that shows calcium in the eye of children except retinoblastoma.

OSSIFICATION OF THE CHOROID

Ossification of the choroid is a rare condition in old degenerated eyes, usually resulting from hemorrhage of the choroid. Findings are soreness, extreme pain to touch and the shell of ossified choroid with a hole in the posterior surface of the eye where the optic nerve enters the globe shows distinctly in the roentgenograms.

LACRIMAL GLAND TUMORS

Lacrimal gland tumors, as a rule, do not show any bony destruction or changes in the shape of the lacrimal gland fossa unless there is an *advanced malignancy* of the lacrimal gland involving the bony orbit in the region of the lacrimal fossa.

PERIORBITAL FIBROUS DYSPLASIA

Five proved cases of periorbital fibrous dysplasia have been beautifully reported recently, photographically and descriptively, by Dr. R. O. Rychener and Dr. Francis Murphy in *Transactions* of American Ophthalmological Society, 1955. We quote a brief part of the authors' roentgenogram description as follows:

> "The bony lesions are usually multiple (polycystic), but occasionally only one bone is involved (monostotic). There are certain sites of predilection, namely, the peri-orbital bones, the base of the skull, the bones of the hands and feet and the upper ends of the femurs and tibias. There is a distinct tendency to be unilateral. X-ray shows gross enlargement and deformity of the bones involved, with thinning and separation of the tables and replacement of the normal bone texture with dense, sclerotic, homogenous tissues often filled with variable-sized cysts."

FRACTURES OF THE NOSE

Fractures of the nose are frequently associated with marked swelling of the soft tissues so that ordinary methods of examination may be entirely inadequate. X-rays should be made in all cases before there is any manipulation to the nose. One must determine which bones are displaced, or overriding. This is easily done by using the Water's posterior-anterior position and the true lateral of very low density. It is even more important to have good pictures when there is a crushing type injury with multiple fragments of the nasal bones. There should also be a follow-up picture to determine the result of reduction of the fracture.

NASAL ACCESSORY SINUSES

ANTRUM: There is only one good position for antrum roentgenograms. This was first published by C. E. Waters, a most outstanding roentgenologist. The Waters, nose-chin position, was first introduced in 1915 in a London publication. We believe the multiple pictures of *low, medium and high density* of the antrum region is more important than in any other sinus group. We advise that a picture be taken in the upright position *to see if a fluid level is present.* It is usually absolute proof of pus in the antrum. X-ray pictures should always be taken before injecting iodine oil into a sinus. The iodine oil may show a defect in the filling of the antrum and in that way one can estimate somewhat the thickness of the mucous membrane or tumor of the antrum. Another advantage in taking pictures of the sinuses is that when allergy is present, the mucous membrane is thicker than usual and one can do a diagnostic antrum wash and if little secretion is found in the antrum, this is an indication that an allergic background is causing the cloudy, thickened mucous membrane.

X-rays of the antrum frequently show positive diagnosis of a benign or malignant tumor, not otherwise detected. Benign tumors of the mucous membrane of the antrum are usually on the floor. The upper part of the tumor, whether it is a polyp, or a cyst. or a hard tumor, is usually oval in shape. When a shadow is in the antrum, there is a permanent record of the size of the tumor and several months later, another picture can be made to compare the progress.

Malignancy of the antrum usually affects the bone and there is a moth-eaten destruction of an antrum bony wall, quite different from smooth necrosis produced by pressure of a mucocele.

It has been our experience that children have acute and chronic antrum infection more often than adults and we think that multiple pictures (3) should be made of each case, varying in density. This is extremely important in children for good pictures are more difficult to take. Another reason is that transillumination of children's antrums is highly unreliable and cannot be depended on nearly so much as transillumination of an adult's antrum. If there is any possibility of a question of a diseased antrum, multiple pictures of three should be made in children and adults.

FRONTAL SINUSES: The only satisfactory position for frontal sinuses roentgenograms was advocated by the late E. W. Caldwell, a very famous roentgenologist of head diseases. Four head-nose, posterior-anterior positions were advocated by him many, many years ago. Usually one roentgenogram of this position is satisfactory because frontal sinus pictures are easy to make and to read, as compared to maxillary sinuses.

The frontal sinuses vary so greatly that an x-ray picture is indicated to determine the width and depth as well as to determine the contents and thickening of the membrane. Again, the upright position should be used to determine if there is a fluid level. In an acute frontal sinusitis, there is a possibility of osteomyelitis. If there have been symptoms only for a few days, do not depend on x-ray for positive findings, for they will not show early. It is better to depend on the swelling than the x-ray pictures in very early cases of osteomyelitis. In cases of acute frontal sinus infection, with the picture showing early involvement *with or without a fluid level,* associated with clinical findings, it is well to take one picture daily to estimate whether the patient is getting better or worse. The picture is made every day with the same timing, exposure and developing. This daily film serial is very valuable when one is worried and trying to decide whether or not to do a trephining operation of the frontal sinus. After several days, or weeks, x-rays of the frontal bone may show the beginning of osteomyelitis. X-ray findings at this stage are what we call late findings in the diagnosis of osteomyelitis. Do not depend on a positive finding of osteomyelitis in the anterior wall of the frontal sinus in acute involvement of the bone. Swelling of soft tissues over the anterior wall of the frontal sinus is usually noticed before findings of involvement of the bone on x-ray. *Frontal sinuses, almost without exception, are affected secondarily to antrum infections, whether acute or chronic.*

ETHMOID SINUSES: The reasons for making pictures of the ethmoid cells are to see if they are cloudy, but more important, the size, number and location, than any other sinus. Of course, one cannot expect to see a fluid level in the ethmoid cells, for there are so many partitions in the ethmoid sinus that, even when present, it would not be detected in the x-ray picture.

SPHENOID SINUSES: In x-ray pictures of the sphenoid sinuses it is again important to know the size and shape, for usually one sphenoid sinus is larger than the other and its depth and width should be known, particularly if you are going to operate on it. In the sphenoid, it is rare to see a fluid level, but it is possible in a very good picture of a large sphenoid. The sphenoids should be x-rayed both laterally and in posterior-anterior positions to get the most information, for one may interpret the sphenoid pictures better if the exposure is made through the base of the skull.

Diagnostic pictures of all the sinuses are essential if the rhinologist is planning to operate on them, either intranasally or externally, for he can learn something from the pictures that is impossible to get from any other type of examination.

FRACTURES OF THE FACIAL BONES

Fractures of the facial bones usually involve the sinuses. To first make a diagnosis of the fractures of the face, make pictures of all the sinuses and then any additional positions that you think necessary, including the zygomatic arch and mandible. These pictures are not difficult to make, but may have to be made in more than one position. Post-injury swelling interferes with the usual examination as it does in fracture of the nasal bone. No surgeon should attempt to give his opinion of fractures of the face without a complete set of x-ray pictures of this region. If he tries to operate. he will certainly be at a great disadvantage without a good set of films present to decide on the method of approach for reduction of the displaced bones.

Shea states: "A study of the normal orbit in the routine posterior-anterior sinus film will show a line in the outer third made by the junction of the outer orbital wall and the skull. This line bears a constant relationship to the outer rim of the orbit and may be used to determine whether or not the malar bone has been displaced. The transverse diameter of the orbit is altered in these fractures, being increased in case of outward displacement and decreased in crushing injuries in which the malar is rotated inwardly. This relationship and diameter are controls available for use in determining the correct position of the parts after the resetting of the fractures."

If there is a deafness following facial injuries, make large lateral pictures of the base of the skull and of the mastoid region to determine if recent fractures of any part of the skull are present.

ACOUSTIC NEUROMA

The best x-ray diagnosis findings for eighth nerve tumor in the advanced stage are demonstrated in pictures made of the apex of the petrous portion of the temporal bone. This tumor frequently causes a pressure necrosis of the internal auditory canal, or the internal auditory meatus. Best positions for x-ray pictures are Stenver's, Chamberlin-Towne, vertico-submental (Taylor's), Bowen-Hirtz, and the petrous portion of the temporal bone which shows through the middle of the orbit in the anterior-posterior position. These positions should all be used, because each position shows a different side of the petrous portion of the temporal bone. We believe the most valuable view of all is the Towne position to determine if there is an enlargement of the internal auditory meatus. A lateral skull x-ray is indicated to determine if there is any evidence of intraocular pressure. If the patient has severe unilateral tinnitus, marked recent deafness without evidence of ear disease, if the cold water caloric test shows poor labyrinth response or negative labyrinth response, vertigo, dizziness or cerebellum incoordination, multiple pictures of the petrous portion of the temporal bone should be made at intervals of every few months to try and rule out the possibility of an eighth nerve tumor. The patient should be told there is always a possibility of a rare tumor of the eighth nerve on symptoms mentioned so he will return for examination and pictures before the brain receives too much damage from this space-taking lesion.

MASTOIDITIS

The best roentgenograms of the mastoid are made in the Law's position. The late Frederick Law was first an otolaryngologist and later a master roentgenologist of the skull. These mastoid views should be multiple pictures of three on the affected side in different densities . . . light, medium and dark. One picture should be made of the unaffected ear and the density should be medium.

Diagnostic x-rays of acute mastoiditis are essential and should be made as early as there is any question of involvement. In the presence of infection in the middle ear with patient worse, or no better, at the end of one week or more, making a second, third, or more pictures is very helpful in trying to decide whether to wait or to operate and drain the mastoid. If the patient has had an acute mastoid for some weeks, x-ray pictures are essential, for they demonstrate not only the general cloudiness, but the size and location of the cells; and, last but not least, whether or not there is cavitation present.

In chronic mastoiditis an x-ray picture frequently determines if the patient should have a semi-radical or radical operation. The choice of operation depends not only on the symptoms, objective findings and character of the secretion, but on the amount of bony involvement or cavitation. In the x-ray diagnosis picture, look for the size of the mastoid compared with the size of the uninfected mastoid on the other side; if there are any cells left; estimate how much new bone formation; if there is a small or large cavitation in the region of the antrum; the location and size of the bony shadows of the lateral sinus. These pictures should be made in the usual Law position and the anterior-posterior position. Always have a picture made of the petrous portion of the temporal bone, so if the petrous is involved at present, or later, there is a diagnostic comparison.

PETROSITIS

This is only important as an adjunct to diagnosis. Unfortunately, x-ray pictures cannot be relied on consistently. If they are positive, they can be of great significance, but if negative, do not necessarily rule out pathology. The most useful positions are, first, vertico-submental (Taylor's); second, Towne's position; third, the petrous portion of the temporal bone, which shows through the middle of the orbit in the anterior-posterior position; fourth, Stenver's position; fifth, Bowen-Hirtz position. You cannot rely singly on any one of these positions, for each shows a different part or different side of the petrous portion of the temporal bone. All five positions, or any other that you might care to use, should be made in each case with symptoms of petrositis. Those patients with mastoiditis, acute or chronic, developing pain behind the eye on the same side as the mastoid, should have views of the petrous portion of the temporal bone to determine if there is petrositis.

THE SALIVARY GLANDS AND THEIR DUCTS

Any patient with symptoms of the salivary glands and their ducts should have complete x-ray pictures of the salivary glands and their ducts to determine the presence of calculus in the gland or in the duct. The submaxillary duct is more frequently involved with calculi; next, Stenson's duct and the parotid gland; and last, the sublingual ducts and glands. Calculi in the ducts are usually oblong in shape. Calculi in the gland are usually round. Most calculi in the ducts or glands will show in one of the various positions. It has been estimated that salivary calculi contain from 66 to 72 per cent calcium phosphate and carbonate; however, there are some small calculi containing very low amounts of calcium that do not show with x-ray. It is infrequent for calculi not to show in x-ray pictures, if they are causing symptoms. Diagnostic x-rays of the anterior two-thirds of Wharton's duct can be made bone-free with an occlusal film, size 2x3 inches in the mouth and with the x-ray tube under the chin. The posterior third must be made in the lateral position (extreme jaw position).

The submaxillary gland films are made laterally in a position called the extreme jaw position. Another position, for submaxillary glands, is the same as in a picture for the right and left sphenoids, in the vertico-submental position. This view was accidentally found by the senior author and has never been described in textbooks for submaxillary gland positions. It is an excellent position when looking for calcium in the submaxillary gland and, whenever sinus pictures are made, one can always look in that region and check up on the submaxillary glands even though the patient does not have any symptoms. X-ray diagnosis of the salivary glands is very important, for if you miss a salivary calculus and try to treat the patient symptomatically, he may never get relief as long as the calculus remains in the duct or gland. Salivary pictures are so satisfactory that the otolaryngologist cannot afford to treat the patient for any length of time without a set of pictures.

The sublingual gland and duct pictures are made with an occlusal film, exactly described for Wharton's duct. The parotid gland is made in a true lateral position. X-ray of Stensen's duct is made with the mouth wide open in the true lateral position attempting to get the teeth and jaws out of the picture. To pass a probe into Wharton's duct and Stensen's duct is a very easy and satisfactory office procedure and a picture made with the probe in the duct frequently is of great diagnostic value. Injecting oil into Stensen's and Wharton's ducts is easily done, and the diagnostic pictures should be made immediately after the injection. This is preferably performed in the same room where the x-rays are to be made, so there will be very little loss of time between the injection and the picture. Every minute some of the oil is excreted. However, in some glands and ducts, parts of the oil remain for several days or for a few weeks. Injection of iodine oil should not be used for diagnosis in acute infections of the salivary glands.

In diagnostic pictures of Wharton's or Stensen's ducts, look particularly for constriction or dilatation of the duct. In the glands, look for defect of filling. In chronic infection of the salivary glands after injection, look for dilatation of the small glandular ducts and multiple cavitations. The picture in these cavitations looks as if the gland had been sprinkled with bird shot, for the iodine oil is scattered through the affected part of the gland and is positively diagnostic. In the glands, particularly the submaxillary, one is occasionally able to see that the gland is spotted with accumulations of calcium.

Patients with repeated obstructed symptoms of Stenson's parotid duct are best viewed with lateral facial positioning of that region. However, calculus even when present, usually may not be demonstrated because of so many bones confusing the completed picture. If one fails to demonstrate the stone, Stenson's duct may be injected with iodized oil and the lateral face position made and if the oil does not pass a certain area or if there is a defect in the radiopaque channel, this frequently gives the diagnosis of calculus.

THE THROAT

X-ray diagnostic aid for the throat is helpful in demonstrating retropharyngeal abscesses and foreign bodies of the throat. It is much less important in other conditions of the throat. Occasionally there is partial ossification of the thyroid cartilage. It is also beneficial to watch the action of the muscles of deglutition while a bolus is swallowed.

Diverticulum, stricture and cardio-spasm of the esophagus have been so well described that it is only necessary to mention them in this article for the diagnosis cannot be proved by any method other than x-ray and the use of opaque fluid.

PITUITARY TUMOR

Usually a pituitary tumor, giving a patient enough symptoms to cause him to consult an oculist, can be found with x-ray, and a positive diagnosis made showing erosion of the posterior clinoid process and sharpening of the anterior clinoid process. The patient does not come to the office on account of headache, or other symptoms of advanced pituitary tumor; he comes because of visual loss. Any patient with a temporal hemianopsia, unilateral or bilateral, and with or without optic atrophy, should have a diagnostic x-ray picture made of the sella turcica at once. The picture is very easy to make, easy to interpret, and one of the most positive diagnostic aids in ophthalmology.

Erosion of the clinoid processes may be due to extra-sellar tumor or intra-sellar tumor. Usually one does not get early x-ray of these pituitary tumors, but if so, there is a decided enlargement of the sella turcica before the posterior clinoid process is completely destroyed. Pictures of the sella turcica are so necessary that the ophthalmologist cannot afford to omit ordering this diagnostic aid if there is any question of pituitary gland involvement (tumor).

EPISTAXIS

Patients with an epistaxis from the anterior portion of the nose, particularly from the septum, should have an x-ray picture of the sinuses for the muco-purulent secretion that dries on the septum frequently causes ulceration and bleeding. Many adults, as well as children, pick scabs from the nose and produce epistaxis. Correcting sinus infection diagnosed from a good x-ray picture often relieves recurrent epistaxis.

STYLOID PROCESS

Painful, elongated styloid processes, unilateral or bilateral, causing tenderness in the neck on palpation and sometimes on movement when swallowing or turning the neck, can be positively diagnosed in many cases by a good lateral, low density roentgenogram. The picture should always be made with the head extended backward.

ALLERGY

This section is written with the deliberately recognized risk of stirring up controversy with both the allergists and the radiologists. The otolaryngologist who looks both at the films and sees the patient, is in a decidedly better situation to eventually come to some conclusions about the clinical aspects of allergic patients and/or patients suffering from both allergy and infection simultaneously.

The basic facts about sinus infection should be elementary to everyone, that it is never a primary condition but is always secondary to any situation in which there is congestion of the nasal mucous membrane for a sufficiently long period of time and to a sufficient extent so that eventually the secretions and organisms present are trapped in the sinus and gain a foothold.

We believe that practically all cases of nasal allergy eventually infect the antrum with the exception of a small percentage of cases in which the osteum of the maxillary sinus is unusually large so that even if considerable swelling is present, adequate drainage of the sinus is possible. As far as x-ray findings in allergic individuals is concerned, we believe that no diagnostic aid is more important. The reader is referred to the monograph by Dr. Towne, the opinions expressed by Arthur Proetz in his textbook and writings and a recent book entitled "Clinical Allergy," by French Hansel, in which he reviews the opinions of various authorities and adds his own thoughts.

We would contend further that it is not possible in most cases to study an x-ray film and to say definitely it is a case of pure allergy or a case of pure infection. At the same time, there are certain features of which one should be aware so that when the case presents, the history and clinical findings and radiological findings can be correlated.

In general, it might be said that infection of the sinuses, in the absence of allergy, shows a less uniform thickening of the mucous membrane. In contrast the allergic mucous membrane shows more thickening near the bone than in the center of the sinus cavity and there is a lighter and fluffier appearance to the cloudiness toward the center but it must be kept in mind that this can only hold true in the very recent cases because infection necessarily always enters the picture eventually so that differential diagnosis between the two becomes merely a matter of speculation if the case has existed for a sufficient length of time. Therefore, the rational clinical approach for the rhinologist in allergic rhinitis cases is to first make informative x-ray pictures and if the sinuses are cloudy, they should be irrigated for diagnosis and to relieve the infection which is a frequent occurrence, keeping in mind the patient has sufficient trouble with the allergy without having a secondary infection superimposed. The individual may be able to put up with either condition separately to a reasonable degree. In those cases resistant to treatment by sinus irrigation or those individuals who may retain a persistent low grade infection along with the allergy, an intranasal antrostomy procedure is absolutely indicated and will help to relieve the symptoms to a considerable degree. In such cases, we recommend the inferior meatus antrostomy route.

If, on the other hand, polyps are present in the middle meatus of the nasal cavity, we believe the proper approach is to do a thorough removal of the polyps followed by an antrostomy through the middle meatus. This middle meatus antrostomy works extremely well and if one will study the anatomy and origin of polyps, they will realize that the mucous membrane of the nose is least adherent in the middle meatus and, therefore, the majority of polyps arise from this region so by removing the middle meatus wall, the chances of recurrence are small. It is well to remember at this point that allergy is not the only cause of polyps. Any chronic infection may also cause them. In this situation in which polyps are present and a middle meatus antrostomy is used, we believe that as many ethmoid cells as possible should be removed at the same time.

There are many rhinologists who would do a radical antrostomy through the Caldwell-Luc approach in those cases in which polyps or rather marked polypoid changes are present in the maxillary sinus. In our experience of several hundred cases, we feel that this is an unnecessary procedure and the patient usually does better without radical removal of the sinus membrane. We are certain that adequate drainage and removal of superimposed infection will leave a more satisfactory lining to the sinus than if it were removed radically. French Hansel, in his recent textbook, agrees with our opinion after observing many of his cases who have been subjected to both procedures.

We wish to make it quite clear at this point that we do not believe that surgery is the entire answer nor do we believe that allergy is the entire answer. We believe both surgery and adequate treatment of the allergy will always give the rest results.

BRONCHIECTASIS

The best article on bronchiectasis was written by the late Karl Kornblum, Am. J. Roent. and Radiol. Therapy, March 1944. Every otolaryngologist should read this article. Kornblum gives the list of the following causes of bronchiectasis:

I. Congenital
II. Acquired
    A. bronchial infection
        1. acute tracheobronchitis
        2. pneumonia
            a. bronchopneumonia
                1) influenza
                2) measles
                3) pertussis
            b. lobar pneumonia
        3. chronic paranasal sinusitis

        4. allergy
    - B. bronchial obstruction
        1. intrabronchial
            - a. foreign body
            - b. broncholith
            - c. occluding secretions
        2. bronchial
            - a. stenosis
                1) congenital
                2) acquired
                    - (a) traumatic
                    - (b) infectious (specific and non-specific)
            - b. tumor
        3. peribronchial
            - a. enlarged lymph nodes
            - b. tumor
            - c. pulmonary fibrosis
    - C. miscellaneous
        1. lesions of the pleura
        2. lesions of the thoracic cage.

R. L. Goodale and also L. H. Clerf have emphasized the importance of sinusitis in the etiology of bronchiectasis. Bronchiectasis, although prevalent in adults, is primarily a disease of childhood. In small children having persistent symptoms of coryza and nasal discharge, a roentgen examination of the paranasal sinuses should be made. In chronic sinusitis in which eradication of the disease is practically impossible, measures should be taken to minimize the significance of the pathological changes and to prevent acute exacerbations. This is usually a problem for the rhinologist. And particularly is it a problem in the so-called cases of bronchosinusitis which are the ones most likely to develop bronchiectasis. From our clinical studies and from the literature written on this subject, we believe if the otorhinolaryngologist would make an early diagnosis with the help of good roentgenograms, he could often prevent bronchiectasis or severe chronic bronchitis in children as well as young adults or old people.

SUMMARY

Diagnostic aid from x-ray pictures warrants a more generalized use in eye, ear, nose and throat examinations.

After a patient has been x-rayed, he is more satisfied with the physician's advice. A physician can treat his patient much more comprehensively and with more assurance that the diagnosis is correct.

It is much safer, and more often curative, to do sinus surgery with x-ray pictures present.

Pictures at intervals are the best way to determine the progress of some diseases.

An x-ray is taken for anatomical as well as pathological diagnosis.

Solid substances or elements of very low density are never magnetic. High density substances or elements may be magnetic or non-magnetic. The very high density substances or elements are non-magnetic—gold, copper, lead, brass, platinum, silver. Therefore, one cannot always differentiate between magnetic and non-magnetic foreign bodies of the orbit by x-ray pictures.

It is most important for the clinician and the radiologist to pool their information and observations on each case.

Multiple roentgenograms of the same region allow a more accurate interpretation than one view of the same region would.

Frequently we see patients with longstanding, severe, chronic sinusitis that *does not cause headaches* and the physician does not detect the sinus infection which is quite often the cause of local or systemic disorders.

We wish to thank the following for their assistance with this paper: Miss Jean Robinson and Mrs. B. F. Woodford of the Memphis Optical Dispensary for making the many slides used in connection with this paper; Dr. Ramsay Spillman, roentgenologist, for furnishing the excellent early history of roentgenology of the sinuses; Dr. Harvey Thorpe for his valuable personal communication and reprints on diagnosis and treatment of intraocular foreign bodies; Dr. Raymond Pfeiffer for his many articles on x-ray of the orbit (he has contributed more valuable information on this subject than any other person); Dr. Charles E. Waters, Baltimore, Maryland, for his personal communication and papers on x-ray of the sinuses; Dr. Lewis Etter for his recent, excellent book entitled *Roentgen Anatomy of the Skull;* Dr. W. S. Cornwall, head of the Department of Roentgenology, Eastman Kodak Company, for the many excellent roentgenograms and technique for taking pictures of the skull. Tribute must be paid to the late Dr. Frederick Law and the late Dr. E. W. Caldwell for their magnificent, original diagnostic work which the whole world has accepted. Also, tribute is due to the late Drs. H. K. Pancoast and E. P. Pendergrass who, with Dr. J. Parsons Sheaffer, wrote the fine book entitled *Head and Neck in Roentgen Diagnosis.*

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Salt and Water Metabolism*

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WATER constitutes approximately 73 per cent of the lean body weight of the body and is thus the most abundant component of the organism. Inorganic salts, although comprising only a relatively small portion of the total body substance, play an important role in maintaining the functional activity of the cells. Deviations in salt and water metabolism may constitute serious defects in the organism and play a most important role in many diseased states.

Composition of the Fluid Compartments

From the standpoint of salt and water metabolism the body may be regarded as a continuous fluid medium with two principal compartments: 1) the intracellular, comprising the tissue cells proper; and 2) the extracellular, consisting of the space outside the cell membranes. The composition of these two compartments differs markedly; the extracellular fluid being of fairly uniform composition and consisting chiefly of sodium ions balanced by chloride and bicarbonate, whereas the intracellular fluid, although varying in composition between various tissues, contains potassium and magnesium as the principal cations balanced mainly by phosphate and protein anions. This capacity of the organism to maintain extracellular and intracellular fluid compartments of different composition is the result of the restraints which prevent the free passage of various electrolytes across the cell membrane.

In contrast to the difference in composition of the cellular and extracellular compartments, the total ionic concentration of solutes, which determines the osmotic pressure, is the same throughout the several body compartments. This constancy results from the fact that the membranes are freely permeable to water which moves in response to any concentration differences between the cells and their surrounding medium.

The extracellular space is subdivided further into the vascular compartment and the interstitial space. The exchange of materials between these two parts of the extracellular space occurs readily except for the larger molecules such as protein to which the walls of the vascular system are only slightly permeable. As a consequence, the composition of the blood plasma and interstitial fluid are identical except for the lower protein content of the latter and the effects of this on the distribution of electrolytes as determined by the Donnan equilibrium.

Electrolyte Composition of Blood

In Table I are shown the electrolyte composition of normal human blood serum expressed as milliequivalents per liter, a unit reflecting the osmotic effect exerted by the various constituents. Sodium constitutes over 90 per cent of the cations, the remainder being made up of small amounts of potassium, magnesium, and calcium. Although these are present in only small amounts, alterations in their concentration, because of the marked effects which they have on protoplasmic activity, are accompanied by profound changes, particularly on cardiac, nervous and muscular activity.

The chief anions of the plasma are chloride and bicarbonate with small amounts of phosphate, sulfate, organic acids, and protein which acts as a weak anion contributing about 16 mEq of the total anions.

In certain pathological states, as extreme salt depletion, dehydration, hyperglobulinemia, diabetic acidosis, etc., the solids of the plasma may increase to such an extent that the apparent concentration of electrolytes appears to be reduced as a result of the diminished plasma water. Under circumstances of severe hyperlipemia or hyperproteinemia, therefore, a low concentration of sodium in the plasma, for example, may reflect the excess of solids which are displacing the plasma water rather than a dilution of body fluids requiring the administration of hypertonic saline.

Fluid Exchange Between Compartments

The most important factor determining the transfer of water is the effective osmotic pressure of the extracellular fluid, shifts of water being determined by extracellular sodium except in hy-

TABLE I

THE ELECTROLYTE CONTENT OF NORMAL BLOOD SERUM IN MILLIEQUIVALENTS PER LITER

Cations		*Anions*	
Sodium	142.5	Chloride	102.2
Potassium	4.2	Bicarbonate	26.4
Calcium	5.3	Phosphate	2.0
Magnesium	1.6	Sulfate	1.0
		Organic acid	6.0
		Protein	16.0
Total	153.6	Total	153.6

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perglycemia. Loss of water in excess of sodium salts or a gain of sodium salts in excess of water will produce hypertonicity, while hypotonicity will result from the opposite condition, namely, a loss of sodium in excess of water or a gain of water in excess of sodium. To correct altered tonicity, water must be administered in an amount estimated to restore to a normal osmotic pressure not only the extracellular fluid but the intracellular fluid as well. This is because although sodium salts are confined almost entirely to the extracellular phase, their osmotic effect on the distribution of water is exerted throughout the total body.

The exchange of fluids between the vascular and extravascular spaces is determined primarily by the hydrostatic forces as described by Starling's theory, according to which, at equilibrium the effective hydrostatic and osmotic forces acting across the capillary membrane determine the passage of fluid. The effective hydrostatic pressure is the difference between the hydrostatic force of the capillary blood pressure and the tissue tension. At the arterial end, the capillary blood pressure is about 40 mm. of mercury which is higher than the effective osmotic pressure and hence results in transudation of fluid. At the venous end, fluid returns from the blood stream because the capillary blood pressure falls to low values while the pressure of the plasma proteins rises as the blood becomes more concentrated.

Normally, the fluid leaving the capillaries at the arterial end is equal in volume to the fluid returning on the venous side, resulting in a continuous intermixing of plasma ultrafiltrate and interstitial fluid without a net transfer of fluid between the two compartments. The lymphatic system constitutes an alternative pathway for the return of fluid from the interstitial spaces to the blood. It returns interstitial protein as well as fluid to the vascular channels and can compensate for such dislocations of the Starling forces as favor transudation.

The osmoreceptor system, by itself, cannot regulate the total volume of fluid in the body. In addition to such mechanisms as the antidiuretic hormone, the adrenal cortex, and the other factors which control water and electrolyte metabolism one must postulate the existence of a regulatory system which controls the absolute volume of fluid in the body. The nature of this volume regulator and its mode of action remain unknown.

External Exchanges of Water and Electrolytes

Water and electrolytes may gain access or be lost from the body via 1) the gastrointestinal tract; 2) the body surfaces (respiratory tract, skin) and 3) the kidneys. The loss of water from the body surfaces is primarily concerned with heat regulation while the gastrointestinal tract serves as the chief means for the accretion of fluid and electrolytes, only small amounts being lost from this source except under pathological conditions. The skin, lungs and gastrointestinal tract, although representing an important adaptive mechanism for the exchange of water and electrolytes, do not regulate and control the volume and composition of body fluids except for the control of acid-base balance by the respiratory system and the control of water intake through the sensation of thirst.

The sensation of thirst arises whenever cellular dehydration is produced and when there is a shrinkage in blood volume Thus, severe salt depletion, resulting in a contraction of plasma volume, is associated with an increased water intake although the cells are overhydrated as a result of the depressed serum concentration. Under these circumstances, however, the ingestion of water does not slack the thirst which can only be done when the salt deficit has been replenished. In profound illness and in debilitated individuals the sensation of thirst may be blunted and this must be taken into account in dealing with such patients. When thirst is present, the possibility of hypertonicity or a diminished plasma volume or both must always be considered.

Except for saliva, which is hypotonic, the gastrointestinal secretions are approximately isotonic with body fluids but their chemical composition differs considerably from the plasma. Losses of fluid from the gastroinestinal tract accordingly may produce electrolyte disturbances which depend upon the composition of the fluid lost. The continued loss of large amounts of sodium, hydrogen, potassium and chloride in gastric juices by vomiting, suction or fistulae, for example, may induce extracellular volume deficits, hypochloremic alkalosis and potassium deficiency. Loss of secretions from the alkaline lower portions of the digestive tract in diarrheal stools or fistulae may produce hyperchloremic acidosis, a contracted extracellular volume and potassium deficiency. Hyperchloremic acidosis may also develop in patients after an ureteroenterostomy.

The water loss through insensible perspiration amounts to about 800 ml of water daily. Sweating entails the loss of a hypotonic solution with a sodium content of 10 to 80 mEq/l and a potassium content of 1 to 15 mEq/l. If not compensated for by the ingestion of water, this will result in an increased serum sodium but a decrease in the total amount of sodium and in the volume of extracellular fluid. If water alone is taken to slack thirst severe hyponatremia may supervene, resulting in heat cramps.

Renal Exchanges

The composition of the body fluids is maintained constant primarily through renal activity. This regularitory function of the kidney includes the preservation of tonicity, volume and acid-base balance by adjusting the urinary excretion of water, sodium, potassium salts and acid.

Urea and sodium salts normally constitute the bulk of the solutes present in the urine. When urea is excreted in large amounts it will produce a solute diuresis tndeing to produce or aggravate dehydration if already present. Seriously ill patients whose renal function is compromised when fed a high protein mixture which results in excessive urea production may excrete such large volumes of urine as may result in profound hypernatremia unless ample supplies of water are administered. The polyuria occurring under these conditions does not indicate that there is adequate hydration of the body. This is particularly true in patients following severe illness whose mental clouding prevents them from complaining of thirst and in whom the injury reaction accelerates the breakdown of protein. Likewise patients losing edema fluid as a result of diuretics or digitalis or those with marked glycosuria may lose water in excess of salt with a resulting hypertonicity and contraction of the extracellular fluid volume.

The antidiuretic hormone of the posterior pituitary is a principal mechanism for maintaining a normal concentration of the body fluids and consequently a normal sodium concentration. It is controlled by the effective osmotic pressure of the extracellular fluid. A shrinkage of extracellular volume and plasma volume is a secondary stimulus for the secretion of antidiuretic hormone and may explain the delayed water diuresis of patients with salt depletion. The changes in concentration of serum sodium are largely corrected for by variations in the excretion of water under the control of the antidiuretic hormone.

Clinical Derangements of Electrolyte and Water Metabolism

To provide a minimal amount of water for that lost through the lungs and in the insensible perspiration and to provide a urinary volume sufficient to permit excretion of waste products, approximately 1500 to 2000 ml of water are required daily. Since the normal kidney can maintain salt balance even on a negligible sodium intake, one need only supply the sodium salts lost from such extrarenal losses as sweating, diarrhea and vomiting or by wastage through the kidney in renal insufficiency. Since mild degrees of renal insufficiency may result in the wastage of salt in the urine under the stress of rigid salt restriction, approximately 5 grams of sodium chloride daily are also indicated. This is provided by 500 ml of isotonic sodium chloride or Ringer lactate. In addition, potassium deficiency will be prevented if approximately 3 grams of this salt, which is always lost in the urine, are administered. To prevent ketosis and minimize the endogenous protein breakdown about 100 grams of glucose should also be given. Hence, to supply a fasting individual with the maintenance requirements for electrolytes and water a combination of 1500 ml of 5 or 10 per cent glucose in water plus 500 ml of Ringer lactate or isotonic saline and about 3 grams of potassium chloride daily are desirable.

Derangements of water and electrolyte metabolism in disease may involve a derangement of the volume and tonicity of the body fluids as well as specific deficiencies or excesses of the various components. Disturbances in fluid volume cannot be separated from disturbances in tonicity and in any given case one must consider the exact nature of the defect involved. One must consider whether there is a deficit or excess of sodium water or other constituents and whether there is a deviation of the volume or tonicity of the body fluids from normal. One may thus recognize six types of derangement of extracellular volume and tonicity: the extracellular volume may be expanded or reduced while the concentration of serum sodium may be normal, reduced or elevated. There is no clinical procedure which is available for measuring the volume of the extracellular fluid and this must be derived, therefore, entirely from the laboratory and physical examination.

An excess of water with a normal salt content is corrected by restriction of water thus permitting the removal of the extra water through the insensible perspiration. Administration of hypertonic saline to correct hypotonicity under these conditions would obviously only expand the extracellular fluid volume and induce edema.

Deficits of water in excess of salt losses may result from dietary dehydration in patients who, because of an injury reaction, are unable to anabolize protein. The water deficit thus produced, because of the large urine volume needed to excrete the excess urea produced, leads to a mounting hypernatremia and azotemia. Excessive sweating results in a similar condition, particularly in non-acclimatized individuals and may lead to contraction of the extracellular volume with an impaired circulation and renal decompensation. In renal insufficiency, polyuria often also results in marked water deficits. In glycosuric and diabetic acidosis, although there is a deficit of water and excess of salt there is no hypernatremia if marked hyperglycemia exists. In diabetes insipidus on the other hand, hypernatremia may be prominent.

Salt deficits with an excess of water are encountered usually as a result of loss of gastrointestinal secretions through vomiting, diarrhea, fistulae, in transudations or as a result of salt wasting states due to renal disturbances, adrenal insufficiency and, occasionally, in diseases of the central nervous system or lungs.

Hypertonicity gives rise to the clinical picture of extreme thirst, dry mucous membranes, increased irritability, tachycardia, and when very marked, irrationality, delirium and death from respiratory failure. The disturbances in the central nervous system are predominant with little evidence of cardiovascular collapse even terminally. The urine volume is small and concentrated, azotemia develops late and is mild in comparison to that seen in a loss of extracellular fluid volume resulting from deficits of salt and water. The hematocrit cannot be relied upon as an index of water deficit.

Chronic hypotonicity is usually asymptomatic and is manifested by an increase in extracellular volume with edema. If acute, the symptoms are those of so-called water intoxication, consisting of headache, nausea and vomiting, muscle twitching and in advanced stages, convulsions and at times hypertension.

Contraction of the extracellular fluid volume gives rise to a clinical picture which is predominantly that of a disturbed circulation, particularly if it develops rapidly. It is characterized by tachycardia, weakness and apathy, postural hypotension, hemoconcentration and azotemia. Skin turgor is poor, the eyeballs are soft, there is mental confusion and dulling of the sensorium, the rectal temperature tends to be low (except in the presence of infection, a hot environment or Addison's disease) and ultimately, frank vascular collapse with oliguria or anuria may supervene. Thirst may be a prominent symptom if the sensorium is not clouded, even when the concentration of serum sodium is normal. In chronic deficits of moderate degree particularly in patients with renal insufficiency an insidiously mounting azotemia may constitute the most important clinical evidence of a decrease of extracellular volume even when the blood pressure is well maintained.

With the availability now in most hospitals, of a flame photometer, the determination of the sodium and potassium content of the blood serum has become a general practice. However, it must be remembered that the sodium level of the serum does not necessarily reflect a deficiency of sodium in the cells. Hyponatremia may be present with a decreased, intact or increased total store of extracellular sodium. The finding of hyponatremia in an adult has a dire implication because the mortality in such patients is approximately 50 per cent. Apparently it represents a loss of cellular vitality allowing the diffusion of sodium from the plasma into the intracellular spaces from which it is normally excluded. In children, on the other hand, where hyponatremia usually results in the course of diabetic acidosis, gastrointestinal fluid losses and cerebral disorders, the outlook is less ominous. One can usually differentiate hyponatremia resulting from sodium depletion or cellular hypoosmolarity, in which the sodium stores are reduced, from that due to water intoxication and hyperlipemic hyponatremia, in which the body store of sodium is intact, and the hyponatremia observed in edematous states such as congestive heart failure, cirrhosis of the liver, and renal failure, in which the total sodium of the body is actually increased. This differentiation may be made from the history, symptoms, signs and laboratory findings.

Losses of sodium are usually manifested by shrinkage of extracellular volume but if marked, renal function may be impaired so that the shrinkage of the extracellular volume will be accompanied by a disturbance of tonicity. On the other hand where losses of water are predominant, hypertonicity usually results, since the kidneys tend to retain the filtered sodium and excrete only small volumes of highly concentrated urine.

Derangements in Potassium Concentration

Derangements in potassium metabolism may or or may not be accompanied by alterations in the potassium content of the serum. In potassium deficiency, the electrolyte composition of the cells is altered, sodium and hydrogen replacing potassium, and the serum concentration of potassium often falls parallel to the intracellular deficit. Disturbances in cardiac conduction and necrosis of heart muscle with an impaired neuromuscular function and concentrating power of the kidney appear, resulting in a hypochloremic alkalosis. A significant degree of potassium deficiency may exist without characteristic clinical signs or symptoms and such as do appear may be attributed mistakenly to the patient's primary illness. A high CO_2 content or combining power of the blood which is frequently the basis for a diagnosis of metabolic alkalosis can also result from respiratory acidosis. The latter may be excluded if the pH of the blood is normal and there is no significant pulmonary disease or respiratory depression.

Potassium deficits may be induced as a result of losses through vomiting or other gastrointestinal losses, decreased glycolysis, diarrhea, the use of resins, alkalosis, starvation, dehydration or an excess of adrenal cortical steroids. All of these result in the transfer of potassium to the extracellular fluid which in turn is lost to the external environment through the urine.

Certain of the symptoms and signs of potassium deficiency are relatively specific and include paralysis of the extremities which is very rare, as is also paralysis of the intercostal muscles. Nonspecific symptoms include extreme weakness, diminished deep reflexes, mental apathy or confusion and chronic ileus with abdominal distention. Electrocardiographic evidence includes prolongation of the QU interval and inversion of the T wave with ST segment depression, the presence of a prominent U wave and the appearance of various arrhythmias usually associated with digitalis toxicity. An unexplained appearance of digitalis toxicity should always arouse the suspicion of the presence of potassium deficiency. Chemical evidence of potassium deficiency includes a low concentration of serum potassium and alkalosis, especially if it persists after adequate replacement with salt and water.

Potassium intoxication is usually a result of renal failure. Oliguria is usually present but this need not invariably occur. This may occur as the result of intrinsic renal disease or as a result of prerenal deviations in which oliguria is usually present. Shock is the most frequent cause of the latter, particularly when accompanied by severe contraction of the extracellular volume. Other causes of potassium intoxication include adrenal cortical insufficiency, an excessively rapid oral or intravenous administration of potassium salts (particularly if salt depletion shock or renal failure are present) and acute respiratory acidosis.

Hyperpotassemia gives rise to more definite clinical symptoms than does hypopotassemia. It is characterized by mental confusion, lethargy, paresthesia of the extremities, changes in cardiac rhythm, peripheral vascular collapse and finally cardiac arrest. The electrocardiographic changes are more specific than in potassium deficiency and include tall peaked T waves, a spreading of the QRS complex, an increased PR interval and a great delay in intraventricular conduction with final cardiac arrest. An analysis of the serum is the most reliable accurate guide for its detection.

Edema

Edema constitutes one of the most common instances of an expansion of the interstitial fluid of the extracellular space. There may be a redistribution of fluid in such a manner that despite a contraction in plasma volume the interstitial volume expands without any notable change in the volume of the extracellular fluid, or the kidneys may retain salt and water, thereby producing an expansion not only of the interstitial fluid but of the total extracellular volume as well. Generalized edema is accompanied by a retention of salt by the kidney.

In congestive heart failure there is an increase in total blood volume with a diminished arterial blood volume with trapping of blood in the venous system which causes transudation into the interstitial fluid. The edema fluid is deposited in areas determined by the Starling forces. Early in heart failure when left ventricular failure is severe and right ventricular failure mild, it tends to accumulate in the lungs which become stiff resulting in dyspnea and orthopnea. Later, as right-sided heart failure develops, sometimes in association with a functional tricuspid insufficiency or hepatic dysfunction, edema accumulates behind the right ventricle, while orthopnea and dyspnea become less severe despite increased pitting edema.

Management of the edematous state of heart failure depends upon correcting the disequilibrium of the Starling forces by digitalis, rest and other measures tending to increase cardiac efficiency and by accelerating the renal excretion of salt and water. Complications such as salt depletion, hypoantremia, potassium deficiency and metabolic alkalosis and hyperchloremic acidosis must always be kept in mind in patients who have received intensive diuretic therapy.

Acid-Base Balance

The anion-cation or acid-base balance are obviously inseparably related to the total ionic structure of the body fluids and intimately associated with disturbances in water and salt metabolism. Acidosis may be classified as 1) metabolic in which there is a primary alkali loss or acid retention or 2) as respiratory due to a primary CO_2 excess resulting from alveolar underventilation. Alkalosis may also be classified as 1) metabolic or primary alkali excess due to alkali retention or acid loss and 2) respiratory due to primary CO_2 deficit or alveolar overventilation.

The chief causes of metabolic acidosis are diarrhea, fistulae, the use of ammonium chloride and other diuretics, resins, renal tubular acidosis, ureteroenterostomy, renal failure, ketoacidosis and methyl alcohol poisoning. Respiratory acidosis results from depression of the respiratory center by drugs, central nervous system disease or from obstructive and ventilatory defects. Metabolic alkalosis results from the use of alkalinizing salts, the loss of extracellular fluid without bicarbonate, or from the loss of acid by vomiting, gastric suction, etc. Respiratory alkalosis results from stimulation of the respiratory center by drugs such as salicylates, by anoxia, by reflexes from chest pain or diminished pulmonary compliance, or by central stimulation due to psychic disturbances or central nervous system disease. Laboratory studies of the serum and urine allow one to differentiate these varying conditions which must be treated according to the etiological factor responsible for their appearance. Thus, the acidosis of chronic renal failure may be ameliorated by administering alkaline salts and, where possible, improving renal function. In alkalosis, if tetany is present, ammonium chloride may be given as a 1 per cent solution by dissolving 10 grams in a liter of saline and injecting it slowly at a rate not exceeding 150 ml. per hour with constant supervision to detect the appearance of ammonium intoxication.

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The Family Physician in Medical Education*

LOUIS F. RITTELMEYER, JR., M.D.†
Jackson, Miss.

I CONSIDER IT a privilege and a pleasure to have this opportunity to speak to you. While the theme which I shall develop deals with the family doctor's role as a medical educator, there is an important and significant variation of the theme which I believe will be of especial interest to those of you whose primary concern is preventive medicine. It is the fusion of the skills and interests of teachers in the fields of preventive medicine and general practice. The result of this fusion is a combined effort which will, in my opinion, impart to medical students, better than any other means yet devised, a realistic concept of the comprehensive or holistic approach to the practice of medicine.

First, a word of explanation regarding our administrative set-up: the General Practice Section is a division of the Department of Preventive Medicine. This follows the pattern set at the University of Tennessee three years ago when it formed the world's first medical school Department of General Practice. The role of preventive medicine at the University of Mississippi, as at Tennessee, is unusual and interesting. At some schools, the Department of Preventive Medicine is the hub at which the teaching of many specialists is brought together in an attempt to coordinate their efforts. On the other hand, about 24 schools are conducting undergraduate preceptorships, in which students are "farmed out" to general practitioners for periods ranging from two to twelve weeks. We do not have either of these plans at the University, but we do have a program which we feel combines the best features of both.

General practitioners are brought *into* the medical school to conduct a teaching program which has a continuing influence on students throughout much of their last three years in school. The Department of Preventive Medicine, in addition to its more usual duties, serves as a "big brother" to us newcomers to medical faculties. This relationship is proving to be quite satisfactory and we believe it is entirely appropriate. Both disciplines run diagonally through a highly specialized and compartmented curriculum. That they work hand in hand is highly desirable and mutually beneficial.

The first question which naturally comes to mind is: What can the family doctor teach?

To begin with, I'd like to quote my favorite comedian, George Gobel. He remarked about a year ago how one television performer supported the Heart Fund, another the Cancer Drive, another the Polio Foundation, and so on. Then he said rather sadly that he guessed he'd got into television too late—all the best diseases had been taken!

Let me assure you that we have no desire to compete with the traditional departments for diseases. The ability of specialists to teach the facts and techniques of their respective fields is a fact too well established to require comment from me. The general practitioner's value to a medical school lies in his *unique* qualification as *family doctor.* He is a specialist, if you will, in family medical care.

It is our intention, therefore, to supplement—not replace—the other clinical courses, *correlating* facts taught by the various specialists, and *integrating* this information with a knowledge of family environmental and interpersonal influences which bear on health. Furthermore, under our supervision, students are permitted to *apply* their knowledge by observing and caring for people in family units.

It is now widely recognized that something has been missing in medical education; that what should have been everybody's business has become, in fact, nobody's. Fifty years ago medical education was sick, and the "treatment" prescribed to cure its ailment was specialization. The beneficial effects of this treatment have been obvious for many years. There is ample evidence to support the claim that specialization both in teaching and in practice was not only necessary but desirable. It was only recently, however, that some rather unpleasant "toxic" side effects became apparent.

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There was an inordinate pre-occupation with the diseased organ or system and too little attention paid the patient. Pursuing the diagnosis and attacking the disease ceased to be merely means used to relieve the suffering of patients and became instead ends in themselves. The gap between academic medicine and private practice widened, and murmurs were heard that the schools were training technicians and super-scientists rather than clinicians. It began to look like a case of "the operation was a success but the patient died."

In recent years, educators began to realize what was happening and took action to combat these undesirable side effects. Many plans have been developed at various schools to accomplish their common objective. The University of Mississippi has selected the family physician to do the job. It has invited general practitioners to plan and operate their own section's teaching program. It is my honest—if somewhat biased—opinion that the right kind of doctor was chosen for this task.

For us, the general practitioners, it is a challenge and an opportunity. We have accepted the challenge with confidence and the opportunity with enthusiasm. We don't claim to have all the answers, but we do believe that our contribution to medical education will be significant.

Our first contact with students is early. In the sophomore year, students are introduced to families in their homes. Each one is assigned a family to visit periodically for several months and is expected to learn as much as he can about the environmental social, economic, and emotional makeup of the family group. He does not function as a physician; and for this reason the project is only an introductory course. A situation is created, however, in which a student meets the members of a family, not as unrelated cases in a hospital ward or clinic, but as a functioning unit in the natural surroundings of their home.

It is our purpose to assist the student, early in his training, to appreciate the many complex factors, involving agent and host, which produce illness and retard recovery. A panoramic view of medicine is thereby acquired before the more limited orientation to organic disease is taught on the hospital wards in the third year. This project is a part of the course in preventive medicine. Principles of epidemiology and biostatistics are explained, using as examples actual diseases seen in the family.

We believe that by introducing the student to these families early in the curriculum, we can nurture a healthy and balanced perspective toward patients and disease. By following through with this outlook, after he has learned the basic facts of clinical medicine, the student can then apply the knowledge he has acquired. He is given this opportunity in the Family Care Program.

Toward the end of the junior year, students select the families which will be under their care. Each student will *be* a family doctor to one or more families for an entire year. He performs routine physical examinations on all members of his family and gives needed immunizations to the children. He evaluates and attempts to correct any environmental conditions which may react unfavorably on the family's health. He approaches each individual's *reaction* to his environment. In the event of illness, the patient calls his "student-doctor," who responds by making a house call or by arranging to meet the patient in the out-patient department, a portion of which is reserved for his office.

These students will see diseases in their early stages and learn to make a diagnosis before illness has advanced and complications imminent. They will learn to cope with the many complaints that somehow never get into the textbooks. They will see the success or failure of therapy in both acute and chronic disorders. They will follow pregnant women for several months and learn that every backache is not pyelitis or every dizzy spell toxemia. They will apply sound principles of preventive medicine to keep their patients healthy as well as cure their illnesses.

In conjunction with both of these programs, conferences are held, at which problems in selected families are discussed with the students and means of solving them proposed. General practitioners and representatives of appropriate specialty departments and health and social agencies attend these conferences.

Supervision of patient care in the family care program is provided by family physicians from Jackson and nearby towns. Our staff consists of rural and small-town doctors as well as men from urban centers. I am the only full-time member of the staff; the others are in private practice and serve part-time without remuneration. The Mississippi Chapter of the American Academy of General Practice has given valuable assistance in securing a competent and enthusiastic faculty.

The staff assists the students in diagnosing and treating their patients as completely as possible. Consultation in office, home or by telephone is available at all times. When necessary, consultation with specialists is sought in the usual manner. If a patient requires hospitalization, the student follows his progress in the hospital and resumes his care following discharge.

The learning opportunities in such a program are numerous. I should like to elaborate on one of them: the *natural history of disease.* By knowing a person when he is healthy, caring for him when he becomes ill, and following his progress to recovery, a student is able to see the complete "picture" of an illness. The basal rales and enlarged liver of congestive heart failure are seen, not as isolated findings in a case of decompensation, but as the progress of a disease which has a cause that might have been prevented, a course that could have been interrupted, and an outcome which can still be made happier. Also apparent are the effects of the disease on the patient and on the other members of his household.

To orient students to the comprehensive, family physician approach, we emphasize 1) *total* family medical care, 2) *continuity* of doctor-patient relationship, and 3) the *family doctor's attitude* to patients and to the practice of medicine. We feel that no collection of specialists can impart this attitude to students; only physicians who possess it themselves can do so.

What are the effects of this type of experience on students? I would say that three stand out as the most important: 1) the realization that *knowing the person*—his fears, his ambitions, his family and his home as well as his signs and symptoms—is necessary for accurate diagnosis and effective therapy in the day-to-day care of patients; 2) an appreciation of the immense value of the doctor-patient relationship in enabling the physician to apply effectively his knowledge of the science of medicine to the problems of the art of healing; and 3) an awareness of the challenges and opportunities in the general practice of medicine and of the vital role played by the family physician in maintaining the health and happiness of the American people.

There are some who worry about the ability of students to shoulder their responsibilities in such a program. My two years' experience at the University of Tennessee has banished any such fears for me. I've seen an elderly asthmatic woman gain a new outlook on life as a result of the personal interest and ingenuity of a student-doctor—after five years of frequent epinephrine and aminophylline shots from the staff of a teaching hospital had done little more than keep her alive. I've seen a patient with acute appendicitis refuse to sign the operative permit until his student-doctor was found and said it was all right. The youngest guest I've ever seen at a graduation was four months old: he had been delivered by a graduating student-doctor—and named for him, too! These and many other examples have convinced me that the *personal* responsibility placed on students in the family care program is not only accepted well and willingly but actually is the *key to its success* in preparing our students for the practice of medicine.

The opinion which any person holds regarding a program as unconventional as ours is undoubtedly dependent to some degree on his own background. It is my conviction that its value is considerable. This is a conviction founded on experience in general practice, where it became painfully apparent to me that my education had *not* fully equipped me to meet my obligations as a family physician.

At the University of Mississippi we hope to inspire a majority of our graduates to enter general practice, particularly in the rural areas still in need of physicians. Furthermore we are determined to provide our students with the opportunity to develop the mature judgment and human understanding which are so essential for the family physician. In short we are dedicated to preparing them to cope with the problems they will meet and to perform the services their communities will expect of them.

In addition to the undergraduate training which I have described, wherein the family doctor is a teacher, the University has planned graduate and postgraduate programs, in which the family doctor is the student. The University Hospital offers an excellent rotating internship. In the near future we will begin a general practice residency, offering up to two years of residency training specifically designed to meet the needs of the doctor preparing to enter general practice. The University's postgraduate program for general practitioners will begin next month, with a two-day course on June 7 and 8.

Before closing, I would like to call your attention to a resolution which was passed unanimously by the AMA House of Delegates, last December 1 in Boston. A continuing Committee on Medical Practice was created and was "directed to utilize all possible means to stimulate the formation of a department of general practice in each medical school." The resolution stated further, "That the American Medical Association approve of the medical school teaching programs which afford the medical student opportunity for experience in the general practice of medicine." Ninety per cent of the members of the House of Delegates are specialists—but they are, first and foremost, physicians who see a need and want it filled.

As you can see, our program is rather ambitious;

but my faith in its possibilities is great. If I were older and wiser, perhaps I would be more restrained in my optimism and more cautious in my predictions. Time will tell. Our objectives are clear and our plans for reaching them look sound. By combining the latest advances in medical science with the highest ideals of sacrifice and service, we hope and expect to graduate men and women well prepared to fulfill their obligations to society. The family doctor is being counted on to play a prominent part in realizing our expectations.

INTERPRETING MEDICAL LITERATURE

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JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center	Surgery

CARDIOLOGY

Clinical Implications of Errors in Electrocardiographic Interpretations —Prinzmetal, et al, JMA, Volume 161, No. 2, page 138.
of Fellowship: Robert Neil Brown, Jackson; Thad-
93(8

Prinzmetal has presented a description of a symptom complex, described under the term "Heart Diseases of Cardiographic Origin." This syndrome seems to be characterized by subjective symptoms of heart disease and marked anxiety, occasioned or intensified by an inaccurate interpretation of the electrocardiogram. Such misinterpretations are known to us all and will continue to occur in the future, due to the inadequacies of our knowledge concerning the formation and development of the electrocardiographic components and to uncertainties involving the range of normal.

The two most important symptoms of this disease are anxiety and chest pain. Tenderness on firm finger-tip pressure over the anterior chest wall is a most significant finding on physical examination, and a correct diagnosis depends on a physician's high index of suspicion of heart disease of electrocardiographic origin and awareness of two facts: 1) That chest pain does not always represent heart disease, in that it occurs as frequently in patients with normal hearts as in patients with coronary heart disease. 2) ST segments and T wave changes do not invariably denote myocardial disease and may frequently be caused by the patient's fear or apprehension. Obviously treatment would consist of prophylactic and therapeutic measures. The phrase "These changes may also occur in patients with normal hearts" should be added to the interpretations of tracings with equivocal ST segment and T wave changes. Curative therapy would consist chiefly of reassurance.

Moderate ST segment elevation of 1½ to 2 mm. is not a rare finding at all in electrocardiograms of young healthy individuals. Paradoxically enough, it seems to be most pronounced in athletes and in persons with tall bodies and narrow chests and is a persistent finding in such individuals. This type of elevation is not associated with signs or symptoms of heart disease, and is assumed to be due to normal variations in the repolarization of the subepicardial myocardium. Acute pericarditis has been diagnosed on the basis of such ST segment elevations, and, after further study, these elevations were found to be normal. Occasionally such elevations can be abolished with 20 mg. of Probanthine intramuscularly, with electrocardiograms before and one hour after such injection showing the autonomic components of such segment changes. T wave inversions also can occur in persons with perfectly normal hearts. It is not unusual for T wave inversions to occur in leads V-1 through V-3 in adults, and in Negro adults through V-5. In addition, there seems to be a type of T wave inversion occurring in normal hearts that would be picked up in a limited number of leads taken from the area of the chest overlying the cardiac apex. In certain individuals the area of T wave negativity is considerably larger and encompasses the entire left side of the chest, leading to negative T waves in all of the precordial leads and occasionally in the limb leads. Prinzmetal states that his group has had occasion to observe several patients in which T waves have been consistently negative as long as fifteen years, during which time there has been no evidence of heart disease at all.

DISCUSSION

I think it is perfectly obvious to most readers of this paper that undue reliance on electrocardiograms has created more problems in the diagnosis and management of heart disease than it has solved. Reliance on so-called "objective" data, such as electrocardiograms, fails to take into account the fact that it, too, as well as pulse, blood pressure, respiration, and other signs are under the control of the autonomic nervous system and this, in itself, may belie its objectivity. Any subjective cardiopulmonary symptom, plus an electrocardiogram with these normal but autonomic variations, will certainly tempt any physician to take the easy way out and pronounce the patient as having heart disease. It is always to be emphasized that the most reliable guide in the diagnosis and management of heart disease is the patient's clinical state, and that unless the symptoms are typical or are accompanied by definite pathognomonic physical findings compatible with diagnosis of heart disease, all electrocardiograms with slight ST segment elevations and T wave inversions should be regarded as possibly normal and that further work should be done in an attempt to prove their benignity.

PEDIATRICS

Prevention of Recurrent Rheumatic Fever: The Use of Repository Benzathine Penicillin G.

A. M. Diehl, T. R. Hamilton and J. S. May. South M. J. 49:250-259 (March) 1956 (Birmingham, Alabama).

According to a program initiated in February, 1953, at the Children's Convalescent Center in Kansas City, Mo., in an attempt to prevent streptococcic disease in rheumatic patients, 118 children with rheumatic fever were given 1,200,000 units of benzathin penicillin G intramuscularly every 28 days for periods varying from 6 to 32 months. The average age of the patient was 12 years. Seventy-six of the 118 children were girls and 42 were boys. Of 2,817 nose and throat cultures for beta hemolytic streptococci secured from these patients, 2,738 were taken after the initiation of prophylaxis. Of the 49 positive cultures for beta hemolytic streptococci, only 13 were proved to be of Lancefield group A type. After base line antistreptolysin O titers had been established, significant rises were observed in only four cases; none of these was preceded by a positive culture. Of 3,041 injections of 1,200,000 units of benzathine penicillin G (an average of 25.8 injections per patient), none caused serious local or systemic toxic reactions in these children. No episodes of recurrent rheumatic fever occurred. These data support Stollerman's observation of the efficacy of the administration of 1,200,000 units of benzathine penicillin G every 28 days in preventing further attacks of rheumatic fever.

Until more is known about the pathogenesis of rheumatic fever, the present logical approach toward prevention is aimed at prompt and adequate therapy of acute streptococcic infections and the use of a continuous prophylactic agent in persons who have had one or more attacks of rheumatic fever. Penicillin is presently the drug of choice. Intramuscular administration of 1,200,000 units of benzathine penicillin G every 28 days is the surest and frequently the most practical prophylactic method of preventing recurrences of rheumatic fever.

Comment: The recommendation offered in this article is not necessarily new. It has been practiced for many years, but in a little different form. The penicillin has been given more frequently and in smaller quantities each time. It has been our practice for many years to use a combination of penicillin and one or more of the sulfa drugs; however, more recently we have used penicillin only. We feel that this will not only prevent the rheumatic fever, but is good treatment for rheumatic fever.

SURGERY

Pancreatitis

The precise *etiology* of pancreatitis remains obscure but much is known regarding contributory factors. Either gallstones or alcohol intake, or both, are found in almost two-thirds of the patients with this disease. While not all those who develop pancreatitis have a "common channel" through which the bile and pancreatic juice empty into the duodenum, the majority do and it appears inescapable that the mixing of these fluids, where present, may contribute to the development of the disease. Finally, it has recently been demonstrated that by incubating pancreatic juice with blood a fluid results which when injected into the pancreatic duct causes fulminating pancreatitis in dogs (Nemir, *Surgery*).

The *diagnosis* of acute pancreatitis still rests primarily on clinical findings and the measurement of the serum amylase level. Admittedly, an elevated serum level of this enzyme may result from trauma to the pancreas, perforated ulcer, morphine administration which causes spasm of the sphincter of Oddi, and other circumstances. Nevertheless, when the level exceeds 600 or 1,000 Somogyi units pancreatitis usually exists.

The *treatment* of the acute attack of pancreatitis is symptomatic in the mild case, employing gastric suction and intravenous fluids. Opiates are best avoided, where possible, since spasm of the spinchter is not desirable. Banthine (50 mg./6 hrs.) or Pro-banthine (50 mg./6 hrs.) may be given to suppress pancreatic secretion. In the more severe case of acute edematous pancreatitis, which may progress to the hemorrhagic variety, more energetic therapy is required. Most important, it is not generally appreciated that in acute hemorrhagic pancreatitis the blood volume may be markedly diminished by both actual blood loss and massive effusion into the peritoneal and retroperitoneal spaces: adequate *blood transfusion is mandatory.* The severity of the intraabdominal pathology and blood volume deficit is reflected in a rapid pulse and, eventually, a fall in blood pressure to shock levels. Time is required for hemodilution to occur following whole blood loss, and shock may intervene before the hematocrit and hemoglobin levels have declined. Severe *pain* may be relieved by bilateral paravertebral sympathetic block (T4-T10). This procedure is easily performed and has few complications. Even if gallstones are known to be present, operation should be avoided during the acute attack of pancreatitis, since the risk of surgery is greater under these conditions.

The *complications* of pancreatitis which may occur in the patient who survives the first few days are numerous. Among these are widespread necrosis and abscess formation, the formation of true epithelial-lined cysts or pseudocysts with only fibrous lining, pancreatic fistula, diabetes mellitus, diffuse pancreatic calcification, or the diffuse inflammatory fbrosis which occasions the painful disability that may lead to narcotic addiction.

The removal of gallbladder and common duct stones and the avoidance of alcohol, following the initial attack of pancreatitis, are prophylactic measures of proved merit. Unfortunately, even these measures will not halt the relentless progress to the chronic state of disabling pancreatitis in all patients.

J. D. H.

Shyrock estimates that by 1950, if present retirement policy continues, 1,000 economically active persons from 20 to 64 will be supporting between 165 and 169 dependent persons aged 65 or over. According to a recent report, of those who retire from their jobs at 65, over 56 per cent are forced to do so and only 9 per cent retire because they want the leisure time.

GUIDES TO FILLING OUT THE FORM FOR SS CLAIMS

In recent months many physicians have heard from patients about the disability freeze provision in the social security law. This provision, added to the old-age and survivors insurance program in 1954, permits people who have prolonged total disability to apply to have their social security records frozen for the period of their disability. Thus, the time when they could not work and so had no earnings credited to their social security accounts does not count against them in determining their rights to benefits, nor the amount of benefits which will be payable to them at age 65, or to their families in case they should die.

Before a worker's social security record can be frozen, he has to meet certain work requirements. His social security record up to the time of his disability must show that he was in fact a worker, with a fairly regular and recent work history. In addition, he must be shown to have a medically determinable physical or mental impairment severe enough to keep him from engaging in any substantial gainful activity—one which has existed for more than six months, and is expected to last indefinitely or end in his death.

The medical evidence needed to establish the nature and severity of the applicant's disability, the date it began, and its prognosis comes from the doctor who has treated the worker and knows his case, or the hospital or institution in which the worker has been confined. A medical report form was designed to assist the physician in furnishing the needed evidence and to indicate the nature and extent of clinical detail which would be necessary.

To make sure that he is providing sufficient medical evidence for a prompt and fair determination, the doctor will want to consider the following guides in filling out medical report forms for those of his patients who have applied for the social security disability freeze:

FIRST, include sufficient clinical detail to enable the reviewing team to make a sound determination as to the severity and extent of the patient's current condition; SECOND, give enough of the clinical history to provide information as to when the disability began, and when it became so severe as to keep the patient from working; THIRD, describe the probable course of the condition from now on, so that a decision can be reached as to whether the impairment is likely to continue indefinitely, or end in death, or whether it is self-limiting, or remediable in the foreseeable future.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

AAGP HEADQUARTERS MOVES

The Academy has moved into its new headquarters building in Kansas City. The new address is: Volker Boulevard at Brookside, Kansas City 12, Missouri.

A State Officers Conference is scheduled to be held at the new building on September 1, following dedication ceremonies. Mississippi President Wm. E. Lotterhos, M. D., and Secretary-Treasurer, A. T. Tatum, M. D., plan to attend.

There is still a big debt on our beautiful (but expensive) new headquarters. Mississippi Building Fund Chairman, S. S. Kety of Picayune, will be happy to receive contributions, especially for members who have not contributed previously. Fewer than one fourth of Mississippi Academy members have given anything. Let's get on the ball.

GETTING ACQUAINTED

The Officers and Directors feel that one of the primary purposes of this page should be to draw the Academy members closer together through the dissemination of news about our members. Anyone wishing to tell us about a newsworthy event concerning any members (including himself) should write the Executive Secretary (Miss Louise Lacey, P. O. Box 1435, Jackson, Miss.)

Periodically the names of new members will be published, so everyone can see who's saying, in effect, "I'm going to be a better family doctor, because I'm going to keep on studying."

To get things started we'll list the present members by districts—one or two districts at a time:

DISTRICT I

Millard Jensen, M. D., Lucedale, director
Eldon L. Bolton, M. D., Biloxi
Harry E. Hoke, M. D., Biloxi
Andrew J. Gay, M. D., Long Beach
Charles C. Jaubert, M. D., Lumberton
Victor E. Landry, M. D., Lucedale
J. F. McDonough, M. D., Pascagoula
Thomas A. Quigley, M. D., Bay St. Louis
E. T. Riemann, Jr., M. D., Gulfport
Joel A. Simpson Jr., M. D., Wiggins
David H. Thornhill, M. D., Crosby
H. R. Unsworth, M. D., Pass Christian
E. A. Bertucci, M. D., Poplarville
Felix J. Harrell, M. D., Biloxi
George W. Hicks, M. D., Pascagoula
S. S. Kety, M. D., Picayune
Amon K. McMillan, M. D., Lucedale
F. C. Minkler, Jr., M. D., Pascagoula
George W. Rogers, M. D., Handsboro
Leo O. Stewart, M. D., Poplarville
Eugene Trudeau, M. D., Biloxi
C. D. Taylor, Jr., M. D., Pass Christian

NEWS BITS

Thirty-seven Mississippi physicians attended the postgraduate seminar held June 7 and 8 at the University Medical Center. Twenty-five Academy members were among those taking the course. Twelve hours of Category I (formal) credit were earned by Drs. J. W. Austin, J. Roy Bane, A. V. Beacham, Samuel T. Feurst, W. D. Fitzgerald, Weston E. Folse, Harry C. Frye, Alex Gordon. Jr., Albert L. Gore, Toxey E. Hall, W. B. Hickman, John B. Howell, Jr., R. P. Hudson, J. D. Hutchins, Robert D. Ireland, Earl T. Lewis, William E. Lotterhos, A. M. McBryde, A. K. McMillan, F. C. Minkler, Jr., W. T. Oakes, A. L. Thaggard, Edward A. Thorne, Lee H. Trapp, and W. Johnson Witt. Dr. Louis F. Rittelmeyer, director of the General Practice Section at the School of Medicine, and an Academy member, was program chairman.

DON'T FORGET

WHAT? Annual Scientific Assembly of the Mississippi Academy of General Practice
WHEN? September 19 and 20, 1956
WHERE? Hotel Heidelberg, Jackson, Mississippi
WHY? If you don't know, come and see!!

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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Address all material for publication to W. H. Anderson, M.D., 104 Hospitality Street, Booneville, Mississippi.

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OUR FUTURE IN SCIENCE

According to an editorial in the American Medical Journal not long ago, Russia will graduate 1,200,000 scientists and engineers from 1950 to 1960, while the United States will have only 900,000. In this age of science this might prove to be very serious. Even during the heat of war Russia held back more of her young men for study in scientific fields than did the United States. This indicates sound far-range planning. In almost every field of endeavor our country needs more scientists, more research men. Even agriculture is in urgent need of research.

The progress of medicine has been miraculous, but the foundation for this has been the tedious research that has gone on before. It is hoped that our medical school will dip into the field of research. Medical research will save life and make our nation more secure. If we graduate a few more doctors than we need some will see the big opportunities in other nations, and go to them. This will be fine missionary work for our nation. This will apply to all other fields of science. But training begins in high school. Youngsters need to be encouraged to take the introductory sciences before college. Many more would have basic preparations for scientific training.

THE NURSE

The nursing problem in our state and in our nation is an important one. The nursing profession for many years has been the right arm of the medical profession. The nurse with an R.N. degree has served *cum laude* both the medical profession and the people. She has helped the doctor in the administration of his treatment, even helped him with diagnosis. She has made the patient comfortable and given him inspiration and determination to get well. She has helped the doctor and the laity to understand each other, oftentimes educating the laity along medical lines. The graduate nurse such as this, trained in heart and mind, we can ill afford to give up. We need of course highly educated nurses for teachers and we need practical nurses, but the R.N.'s place is unique. Dr. W. E. Lotterhos, in addressing a group of nurses, pointed out the following things to remember while in training and after the nurse is out: 1) Time is valuable; 2) perseverance plays a great part in the role of success; 3) there should be joy in one's work; 4) there is dignity in simplicity; 5) character is higher than intellect; 6) there is unlimited power in kindness; 7) our example is an influence; 8) duty is an obligation; 9) economy is wisdom; 10) patience is virtue; 11) talent yearns for constant improvement; and 12) there is joy in originating. What a galaxy of attributes for that indispensable woman in white! She can not wear these and be a slave to dollars and hours.

NEW HEALTH DEPARTMENT

Jackson, Mississippi, is putting on professional airs now with its new Medical Arts Building just across from the Baptist Hospital. This building is a credit to this fine and rapidly growing city. The new home for the state medical association is quite a distinction, too, and a fine asset to the growing medical center. And now Governor Coleman is asking for a new headquarters of the State Health Department on this university campus. We commend his interest in this important facility. The Old Capital building is inadequate now for such a big and growing health department. The medical school and health department can work hand in hand for the advancement of the health of the people of our state. Each can be a great help to the other. It will be a fine day when we have the State Health Department adequately housed on the campus of our four-year medical school. It will be a tribute to the Coleman administration.

ALUMNI GROUP GROWS

The medical alumni organization of Ole Miss bids fair to becoming an effective, forceful group. With our four-year medical school moving upward and onward and Jackson becoming a growing medical center, the alumni organization can be very important. The officers of the organization are: Dr. Lamar Arrington of Meridian, president, Dr. Archie Hewes of Gulfport, vice-president, and Dr. James Grant Thompson of Jackson, secretary-treasurer.

SOUL OF THE SURGEON

Recently off the press is a third printing of *The Soul of the Surgeon* by Dr. Rudolph Matas of New Orleans. This masterful address was delivered at Hattiesburg before the State Medical Association in 1915. Dr. Matas, professor of surgery at Tulane Medical School, was the outstanding pioneer in vascular surgery. He is referred to as the dean of the surgical world. Surely a more versatile man has not lived in this nation. He is now about 95 years of age. He, Dr. W. A. Evans, and Dr. Seale Harris were barbashelahs of Southern medicine known around the world. Dr. Evans of Aberdeen passed on about six years ago. We believe every surgeon and every practitioner should love to possess this little gem of wisdom and inspiration.

The printers had in mind this time, a nice gift book. Address your order to Milwick Printing Company, Booneville, Miss. The price is $1.75.

News and Comment

MEDICAL ARTS BUILDING OPENS

The six-story Medical Arts building owned by the Mississippi Baptist Hospital and located across North State Street from the north end of the hospital was formally opened on May 29.

The building houses 41 doctors and dentists and other offices are now being completed. Sixty-two per cent of the space is being utilized and Administrator Paul Pryor said it will probably be 100 per cent occupied by the end of this year.

He said that the building was totally financed by a self-liquidating loan. It was built on property formerly owned by the State Blind Institute.

Wortman and Mann, Jackson realty firm, is leasing agent for the building. They also act as coordinator of office layout and design between the doctor and the architect. All offices are custom built to the lessor's specifications to fit the needs of the particular type of practice carried on by the physician or dentist.

The ground level of the building is leased to commercial establishments and now houses a sandwich shop, gift shop, florist, pharmacy, optical dispensary, and a specialized cosmetic shop.

The building has approximately 7500 square feet of rentable floor space on each floor and has many unique construction features.

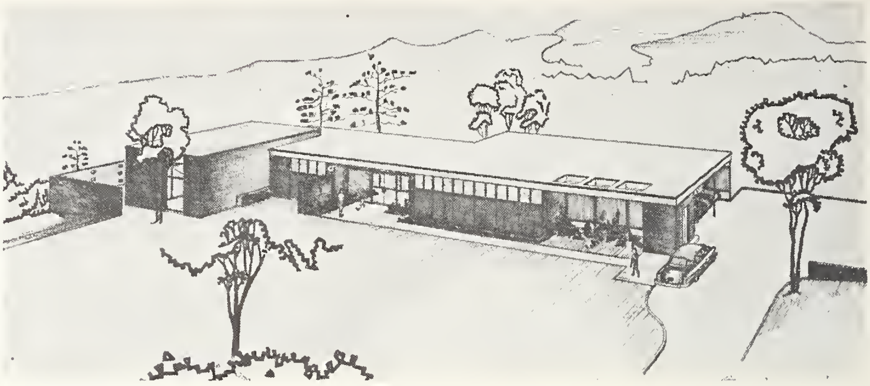
The building is connected with Baptist Hospital by a tunnel under North State Street. This provides quick access for tenants and patients from the Medical Arts Building to the hospital emergency room regardless of traffic or weather conditions.

Also provided in the new building are special ambulance entrance and an elevator especially designed to handle the transportation of stretcher patients up to the doctors' offices or from their offices through the tunnel to the hospital. Additionally, there are two self-service passenger elevators of the very latest design.

ACCP

The twenty-second annual meeting of the American College of Chest Physicians was held at the Hotel Sherman, Chicago, Illinois, June 6-10. Over 1,400 physicians and guests attended the meeting. Fellowship certificates were presented to 250 physicians at the Convocation held on Saturday, June 9. At this time the following physicians from Mississippi received their Certificates of Fellowshp: Robert Neil Brown, Jackson; Thaddeus D. Labecki, Jackson; J. C. Russell, Jr., Cleveland, and Clyde A. Watkins, Sanatorium.

MSCA CENTRAL OFFICE HEADQUARTERS



The first permanent home of the Mississippi State Medical Association was dedicated and officially opened at Jackson on May 7 when physicians and guests participated in formal ceremonies on the eve of the Centennial Annual Meeting.

Located in the heart of Mississippi's new and growing medical center, the MSMA Central Office Headquarters Building is at 735 Riverside Drive. The building site, owned by the association since 1954, is slightly more than one acre, fronting 186 feet with a depth of more than 250 feet.

Dr. S. Lamar Bailey, Kosciusko, 1955-56 MSMA president, delivered the dedication address, declaring that ". . . this building is more than a structure of masonry and steel. It is a lasting symbol of service, a tangible reminder of your doctor's dedication to you, not a monument, but a beacon which says every minute of the day and night that this is medicine in Mississippi—this is a symbol of service."

Twice in the dedicatory address, Dr. Bailey made reference to Solomon at the dedication of the Temple when he said, "I have surely built Thee an house to dwell in, a settled place for Thee to abide in forever."

Dr. Guy T. Vise, Meridian, chairman of MSMA's Council, presided as master of ceremonies. Dr. James Grant Thompson, Jackson, accepted the building from the architect, Mr. Jay T. Liddle, Jackson. The Robert Kelly Construction Co., Raleigh, was general contractor; there were fourteen sub-contractors.

Members of the building committee are Dr. Thompson, Drs. Stanley A. Hill, Corinth, and L. T. Carl, Jackson. Mr. Charles McMullan, Jackson, served as associate architect, and engineers were Thad Luke, Jackson, mechanical, and Mr. Robert Briggs, Jackson, electrical. Furnishings and decoration were supplied by the Mississippi Stationery Co., and the Kennington Co., Jackson.

The Rev. Lloyd Sparkman, pastor of the First Baptist Church, Kosciusko, offered the prayer of dedication prior to the traditional cutting of the ribbon. Dr. Bailey and Dr. Elmer Hess, Erie, Pa., 1955-56 president of the American Medical Association, jointly cut the ribbon with gold suture scissors made especially for the occasion by the A. S. Aloe Co.

About three hundred MSMA members and guests were present for the exercises and open house. Other distinguished guests included Dr. George F. Lull, Chicago, AMA secretary; Dr. W. Raymond McKenzie, Baltimore, president, Southern Medical Association; and Dr. Arnold Jackson, Madison, Wis., president, International College of Surgeons.

The building is of masonry and steel construction with a piling and suspended slab foundation. Interior finishes are paneling, plaster, and tile. One wing is occupied by the association's office staff and the other, by the conference room and president's office. The entire building is air conditioned.

The theme of the dedication as well as that of the annual meeting begun on May 8 was the centennial celebration of MSMA's founding in 1856.

FORD FOUNDATION PAYMENTS

More than 1,000 hospitals in every state in the U. S. have received their first checks from The Ford Foundation in the initial payment of the Foundation's $200,000,000 program to help the some 3,500 privately supported hospitals improve and strengthen their services to the public. The grant was announced in December:

Mississippi hospitals benefiting are: Biloxi—New Biloxi Hospital, $10,250; Brookhaven — King's Daughters' Hospital, $13,050; Columbus—Columbus Hospital, $11,700; Houston—Houston Hospital, $12,350; Jackson—St. Dominic-Jackson Memorial Hospital, $25,300; McComb—McComb City Hospital, $8,950; McComb Infirmary, $7,450; Tupelo—North Mississippi Community Hospital, $27.650; Tylertown—Pittman Hospital, $7,300; Vicksburg—Vicksburg Infirmary, $11,050; State total, $135,050.

Aberdeen—Aberdeen Hospital Company, $5,000; Amory — The Gilmore Sanatarium, $6,750; Clarksdale—Clarksdale Hospital, Inc., $8,950; Hattiesburg—Methodist Hospital of Mississippi, Annual Conference, $28,700; Meridian—St. Joseph Hospital, $9,700; Rush Medical Foundation, operating Rush Memorial Hospital, $18,900; New Albany Hospital and Clinic, $5,000; Vicksburg—Mercy Hospital—Street Memorial, $25,000; State total, $108,000.

ACP

The American College of Physicians held its thirty-seventh annual session at Los Angeles, Calif., April 16-20, 1956, with a gross registration of over 4,500. Dr. Walter L. Palmer, of Chicago, was inducted as president. Other officers elected were: Dr. Richard A. Kern, Philadelphia, Pa., president-elect; Dr. Chester M. Jones, Boston, Mass., first vice-president; Dr. George H. Anderson, Spokane, Wash., second vice-president; Dr. Truman G. Schnabel, Sr., Philadelphia, Pa., third vice-president; Dr. Wallace M. Yater, Washington, D. C., secretary-general. Dr. William D. Stroud, Philadelphia, Pa., was re-elected treasurer.

Dr. Thaddeus Labecki of Jackson was elected as a fellow; Dr. A. W. St. Clair, also of Jackson, is a junior member.

The 1957 meeting will be held in Boston, Mass., April 8-12.

MSMA MEMBERS TO CHICAGO AMA MEETING

Jackson—Drs. Thomas A. Baines, Happy L. Gee, Eugene Hesdoffer, J. Harvey Johnston, Jr., Thad D. Labecki, Lawrence W. Long, D. S. Pankratz, Lee R. Reid, H. C. Ricks, James P. Sharon, Frank Simonelli, James G. Thompson, George E. Twente.

Clarksdale—Drs. W. Winston Barnard and Ruben Rubisoff.

Magnolia—Dr. Aubrey V. Beacham.

Hattiesburg—Drs. J. P. Culpepper and E. M. Herring.

Charleston—Dr. Paul R. Googe.

Magee—Dr. John K. Henry.

Corinth—Dr. Stanley A. Hill.

Greenwood—Drs. John F. Lucas and Howard A. Nelson.

Meridian—Dr. William R. Mitchum.

Cleveland—Dr. John Russell.

GULF COAST CLINICAL SOCIETY

The sixteenth annual meeting of the Gulf Coast Clinical Society is to be held at the Admiral Semmes Hotel in Mobile, Alabama, on October 18 and 19, 1956.

The speakers this year are as usual selected from the faculties of the various medical schools and a fine program that will interest the doctors from all over the state is planned.

SOUTHERN MEDICAL TO CELEBRATE GOLDEN ANNIVERSARY

The Southern Medical Association, whose membership embraces 16 states and the District of Columbia, will celebrate its golden anniversary at the Read House in Chattanooga, Tenn., its birthplace, on October 2 and 3. It was on these two October dates that the Association was organized in 1906.

Dr. J. P. Culpepper, Hattiesburg, Miss., an A.M.A. delegate, has been appointed chairman of the celebration advisory committee and will preside at the dinner meeting on Tuesday evening, October 2. Dr. Culpepper is president-elect of Southern Medical and will take office at the annual meeting in Washington next November. Dr. W. Raymond McKenzie of Baltimore is now serving as president.

The final activity of the celebration will be the unveiling of a bronze plaque at the Read House on Wednesday, October 3.

The principal speaker for the occasion will be Dr. R. L. Sanders, whose 50 years of professional life has run concurrently with Southern Medical. He served as president of the organization last year.

INTERNATIONAL CANCER CYTOLOGY CONGRESS

The First International Cancer Cytology Congress, sponsored jointly by the International Union Against Cancer, the College of American Pathologists, the American Society of Clinical Pathologists and the Inter-Society Cytology Council, will be held at the Drake Hotel, Chicago, on October 9, 10, and 11, 1956.

A partial list of the scientific discussions includes "The Historical Landmark in Exfoliative Cytology," by George N. Papanicolaou, New York; "Pulmonary Cancers and Their Cells," by Drs. John B. McDonald, Lewis B. Woolner, Rochester, Minn., and Dr. Nathan Chandler Foot, New York; "Normal and Abnormal Cells in Gastric Washings," by Dr. John Seybolt, New York; "The Cellular Detection of Cancers Involving Urinary Tract," Dr. Walter T. Wikle, Denver; "A Pathologist's Views on the Subject of Cytology," Dr. David C. Dahlin, Rochester, Minn.; "Normal Cells Arising in the Female Genital Tract," Dr. Charlotte M. Street, New York; "Pre-Cancerous Changes in the Uterine Cervix," Dr. Edward Siegler, Cleveland; "Cellular Study of Epithelial Dysplasia in Pregnancy," Dr. William D. Walters, Detroit.

In addition to these and other papers, there will be panel discussions and symposia by the world's most recognized cancer experts.

For specific information concerning the Congress, inquiry should be directed to Dr. Arthur H. Dearing, College of American Pathologists, Prudential Plaza, Suite 2115, Chicago 1, Illinois.

BILOXI DOCTORS HONORED

Two 1906 graduates of the Tulane University School of Medicine from Biloxi are the recipients of second diplomas in honor of their fiftieth graduation anniversary during the 1956 commencement exercises of Tulane held on the Tulane campus. They are Dr. Adolph D. Henriques and Dr. George W. Wallace.

The two 50-year graduates were seated in a special section during the graduation exercises and were guests of the Tulane Alumni association at a luncheon at the Tulane Alumni house at noon.

The Biloxi physicians are among 46 members of the 1906 graduating class received second diplomas.

Dr. George Wallace

Dr. Wallace was born October 13, 1874, in Nagatoches, La., to George Wallace of New York and the former Alice Black of Texas, whose parents both came from Northern Ireland.

In 1906, Dr. Wallace graduated from Tulane Medical school and in 1910 married Lilliam Hewitt of Canada. Mrs. Wallace died in 1932 and in 1939 Dr. Wallace married Mona Atkinson of Biloxi. He had two children by his first marriage, Hewitt and Mrs. G. W. Scarborough, and two children by his second wife, one living, Mona Mary, aged eight.

For many years Dr. Wallace has been active in the American College of Surgeons as president of the American College of Surgeons for Mississippi. He has spent practically a life time of practice on the Mississippi Coast in Biloxi apart from being principal of one of the schools in Chaneyville, La., for two years, and practicing surgery and medicine in Arbo for two years.

Dr. Wallace became ill Dec. 12, 1953, and retired from his office in March 1954 but still receives old patients who feel they would like to consult with him.

He was superintendent of Touro in New Orleans and assisted Dr. Rudolph Matas in many operations, who also signed his diplomas. Because they classed him a great surgeon the Mayo brothers used to send patients to Dr. Wallace.

He went to Europe with the American College of Surgeons and had an audience with Pope Pius XI and kissed the Pope's ring. Dr. Wallace is a member of the American College of Surgeons, Coast Counties Medical and Episcopal Church.

AMA SESSION FOR RURAL HEALTH

Following the adage that two heads are better than one, the AMA's Council on Rural Health has scheduled a fall study conference for chairmen of state rural health committees. The October 19-20 session will be held at Purdue University, Lafayette, Ind.

Wilford C. Doss, M. D., announces the opening of his office for the practice of Pediatrics and Pediatric Allergy at the Florence Medical-Dental Building, 216-222 West Tennessee Street, Florence, Alabama.

SOCIETY LEADERS INVITED

Concentrating on just one big public relations meeting this year, the American Medical Association announces plans for its 1956 PR Institute to be held August 29-30 at Chicago's Drake Hotel. This two-day session will combine the socio-economic discussions formerly reserved for the PR Conference with the idea exchanges usually on the Institute program.

Especially invited are the men and women who work with medical society public relations programs — society officers, PR committee chairmen, society lay personnel, auxiliary PR chairmen, and medical school PR personnel. Registrants will be the guests of the Association at luncheon sessions. Room reservations should be made directly with the Drake Hotel.

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Ninth District	Mrs. George W. Hicks	Pascagoula

NEW OFFICERS

The new roster of names in the masthead above announces our officers and committee chirmen for the new Auxiliary year ahead. We hope to bring you a presentation of our new president in the next issue.

(The following poem, gift of the author to the Auxiliary to Central Medical Society, and written for their observance of Doctor's Day on March 27, was exhibited at the state meeting beautifully lettered and framed, as a part of the doctors' hobby display. Mrs. Willard L. Waldron was the chairman of this interesting exhibit.)

DOCTOR'S DAY

(Dedicated to Every Doctor Everywhere)

A "Doctor's Day" has been proclaimed
To honor as the best we can,
Those men of science whose lives are spent
In service to their fellow man.

It's fitting that this day should be
Perpetuated, set aside,
That tribute, honor and acclaim
May in the hearts of all abide.

Though just one day in all the year
We set aside to homage pay,
The Great Physician's chosen ones
Perform their wonders EVERY day.

Lest we forget that Christ inspired
These men who tread on holy soil,
Each day let's say a little prayer
That He will bless our doctors' toil.

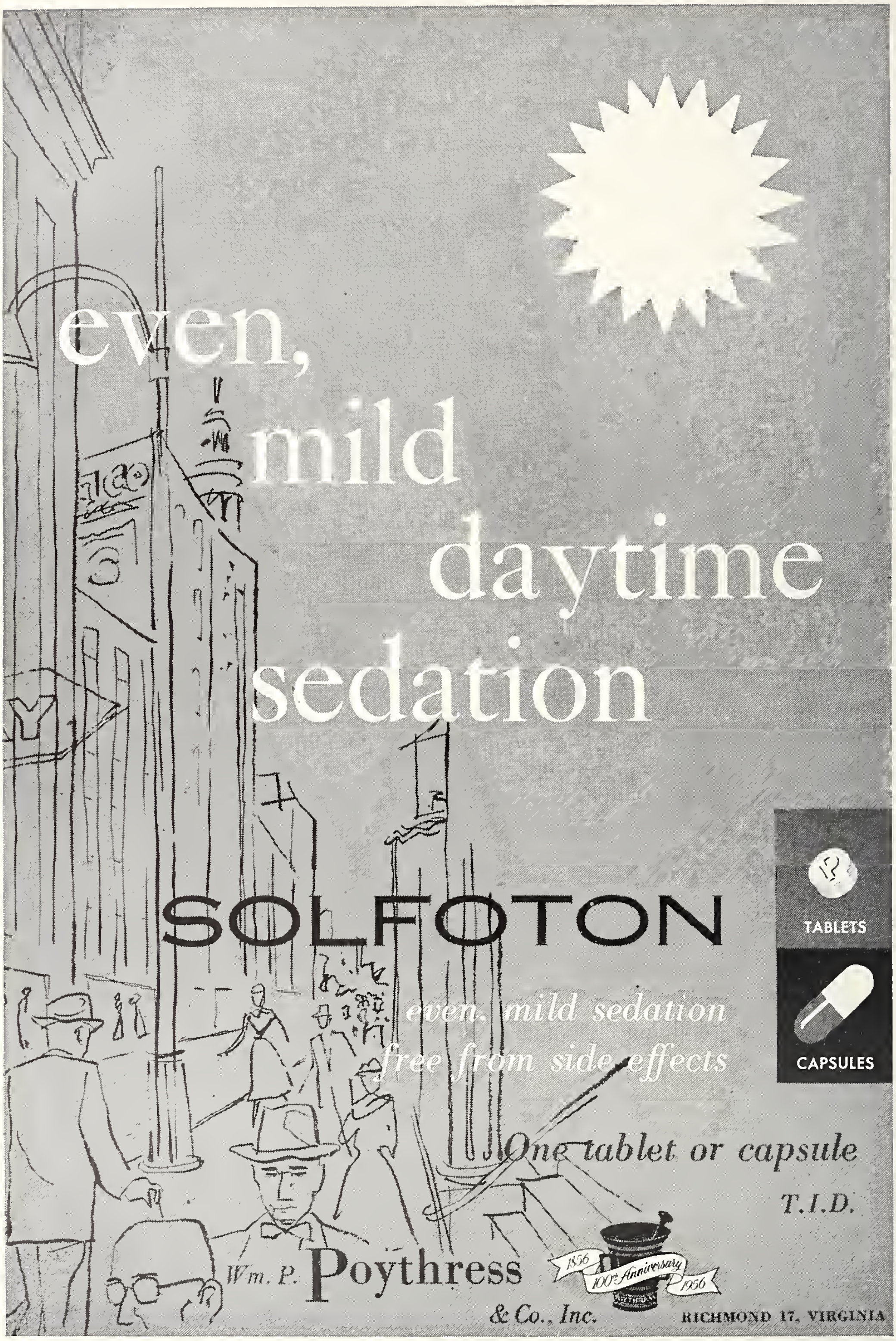
—Jeanette James Hobby

TODAY'S HEALTH WINNERS ANNOUNCED

Honors for chalking up the largest number of subscription sales in the *Today's Health* contest went to the states of Arizona, Indiana, Kansas, and New Mexico. The awards were presented during the Woman's Auxiliary convention in June in Chicago.

A good conscience is a continual Christmas.

Conversation enriches the understanding, but solitude is the school of genius. —Gibbon



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Ruptured Aneurysm of Abdominal Aorta: Successfully Treated by Resection and Homograft Replacement

HARWELL WILSON, M.D.
E. E. BRAMLITT, M.D.†

Resection of diseased segments of the aorta with replacement by homograft has become an accepted method of surgical treatment within the last few years. This work was visualized, and the groundwork laid, by Carrel[1], Hoepfner[2], Stich[3], Tuffier[4], and a few others more than fifty years ago. However, it remained for the surgeons of today, such as Oudot[5], De Bakey[6], Dubost[7], Gross[8] and others, guided by improved anesthesia and graft storage techniques, to develop this into something more than an experimental procedure; into a method of therapy generally acceptable, and with wide application. Especially significant have been the contributions to this field of surgery made by De Bakey, Creech, and Cooley.

In previous publications (Wilson, Harwell and Hardy, J. D.[9], and Wilson, Hardy, and Bramlitt, E. E.[10]) we have reported some of our experiences related to the resection of the aorta followed by successful homograft replacement in patients with abdominal aortic aneurysm and with occlusive disease of the aorta as described by Leriche.

Studies have shown the average length of survival after diagnosis of aneurysm of the abdominal aorta is from one to two years, with rupture of the aorta being the most common cause of death in these patients.

Before an abdominal aortic aneurysm shows evidence of leaking the patient has a relatively good chance of survival by resection and graft replacement. After rupture of such an aneurysm, operation offers almost the only chance of survival, but the operation is far more hazardous than in the elective case. Most of these patients are in the older age group and subject to the general debilities of their age, but age itself is certainly not a contraindication provided cardiac, renal and respiratory reserves are adequate. Patients as old as seventy-nine years have been successfully resected with good results. Hypertension is of course not a contraindication.

When the physician is presented with the problem of acute abdominal pain in a patient with known aneurysm of the aorta, the problem is a most critical one. If possible, rupture of the aneurysm must be ruled out as the etiology of the pain. In years past this was purely academic, but today the accurate diagnosis may mean the saving of a life. Many of the patients with perforated abdominal aneurysm may be saved if the diagnosis is made, or suspected, and suitable operation performed. Regardless of the apparent hopelessness of the situation and risk of the operation, the patient's only chance for survival may be resection of the aneurysm with replacement by a graft. The following case illustrates this point well. The patient, a cardiac cripple for many years, despite the extensive operative procedure and large loss of blood, was saved from an untimely death and returned to society.

CASE REPORT

Mr. H. C., a 70-year-old white male, was admitted to the Medical Service of the John Gaston Hospital on December 4, 1955, as a diagnostic problem. The chief complaint was extreme nausea for the past week, with vomiting three to five times daily for the last three days prior to admission. At that time the patient was incoherent and disoriented and an accurate history could not be obtained. There had been no hemoptysis, hematemesis or melina.

The patient's family stated that he had had a transurethral resection seven years prior to admission and had not worked since that time. He had also sustained a coronary occlusion seven years prior to admission and had been hospitalized twenty-six times then for cardiac decompensation and severe chest pain thought to be repeated occlusion. The patient had been taking digitalis daily, and aminophylline at intervals for three years to relieve his congestive failure.

Physical examination revealed a disoriented, white male with generalized distension of the abdomen. Bowel sounds were hypoactive. There was minimal generalized tenderness to palpation and a tympanic percussion note. A questionable mass was palpable in the epigastric region, thought to be about 10 cm. in diameter, no pulsation was noted at this examination. The temperature was 102°, blood pressure 130/60. Heart and lungs not particularly remarkable.

Radiological examination upon admission revealed a normal chest film. The plain film of the abdomen showed a large amount of gas and feces in the colon and a few gas containing segments of small bowel. The psoas shadow and properitoneal fat layer were well maintained.

Laboratory findings: N.P.N. 34 mg. per cent, Hct. 43 per cent, urine one plus proteinuria, 40-60 WBC/hpf., EKG, sinus tachycardia.

The diagnosis of partial intestinal obstruction was made and the patient treated conservatively. The patient improved rapidly with gastric suction, administration of intravenous fluids and other supportive therapy. With relief of the distension, the epigastric mass became more clearly defined and was found to pulsate with the heart beat. Further x-ray studies revealed diverticuli of the sigmoid colon, multiple diverticuli of the small bowel, nonvisualization of the left kidney by the urogram and the presence of the mass in the mid-epigastrium. The temperature remained elevated from 100 to 102°.

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†From the Department of Surgery, University of Tennessee School of Medicine and the John Gaston Hospital, Memphis, Tennessee.

On December 12, 1955, the patient had a sudden drop in blood pressure, which progressed over a six-hour period to a severe state in which the pressure was unobtainable. The patient was given 1000 cc. of blood, which returned the blood pressure to near normal levels. The patient was very restless, moaning and groaning continuously and complaining of abdominal pain.

At this time the Surgical Department was asked to see the patient in consultation. The diagnosis was believed to be aortic aneurysm with perforation. Aortograms were made following injection of 25 cc. of 70 per cent urokon by the usual technique. A large aneurysm of the abdominal aorta was visualized extending from just below the renal vessels down to the bifurcation of the iliac vessels. With this additional information the diagnosis was thought to be conclusive and the patient was prepared for surgery. The dangers of aortography in this patient were realized. It was felt, however, that this procedure would give definite information as to whether or not the lesion was operable. Actually, the film did not definitely settle the point since the film suggested that the aneurysm originated very near, and possibly above, the level of the renal vessels.

On the evening of December 12, 1955, the operation was performed. The abdomen was opened through a midline incision extending from the zyphoid to the symphysis pubis. Upon opening the peritoneum 1500 cc. of dark blood poured out. There was, however, no active bleeding at that time. In the left gutter behind the descending and sigmoid colon and in the sigmoid mesentary was a large hematoma. The aneurysm was found as described previously, being about 10 cm. across at its widest diameter.

The aneurysm was believed to be resectable. A catheter was placed around the aorta just distal to the renal vessels to be used as an emergency hemostat. A Satinsky clamp was placed just below the catheter, but not clamped. The posterior peritoneum was opened and dissection of the aneurysm begun. A spontaneous rupture of the left side of the aneurysm occurred during this procedure, resulting in profuse hemorrhage, necessitating the immediate closing of the Satinsky clamp on the aorta just beneath the renal vessels. This, of course, increased the necessity for rapid dissection and insertion of the graft so that circulation might be restored to the lower extremities. The iliac vessels were isolated and blood flow controlled by clamps. The anterior wall of the aneurysm was removed by sharp dissection. A small portion of the posterior wall of the aneurysm, which was adherent to the vena cava, was left in place, and the opening of the lumbar vessels were sutured as necessary. A lyophilized bifurcation homograft was reconstituted and inserted into the defect extending from one inch below the renal vessels down to the junction of the internal and external iliac vessels on both sides. The anastomosis was made with continuous fine arterial silk with all knots being placed outside the lumen. Dilute heparin (10 mg./20 cc.) was injected into each iliac vessel while it was clamped in order to prevent clotting of the stagnant blood in the extremities. The inferior clamps were released first, in order that the anastomotic areas could be tested under a lower pressure. Bleeding was minimal and was controlled with pressure, and the upper clamp was removed.

The patient received 4500 cc. of blood during the procedure, which lasted 270 minutes.

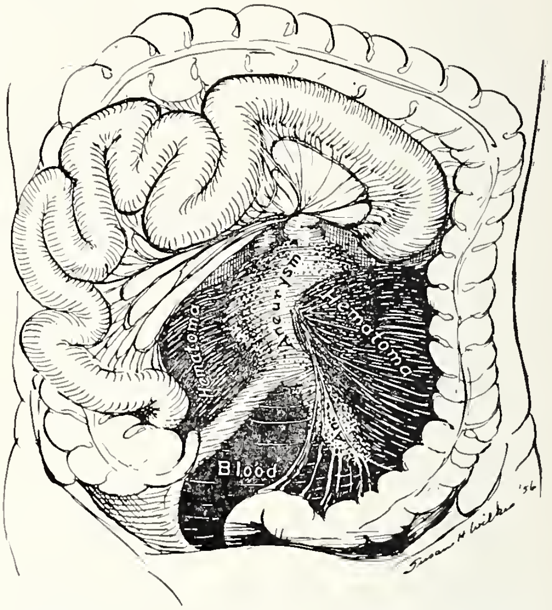

FIGURE 1. Drawing showing aneurysm of abdominal aorta, free blood in the abdominal cavity, and large retroperitoneal hematoma.

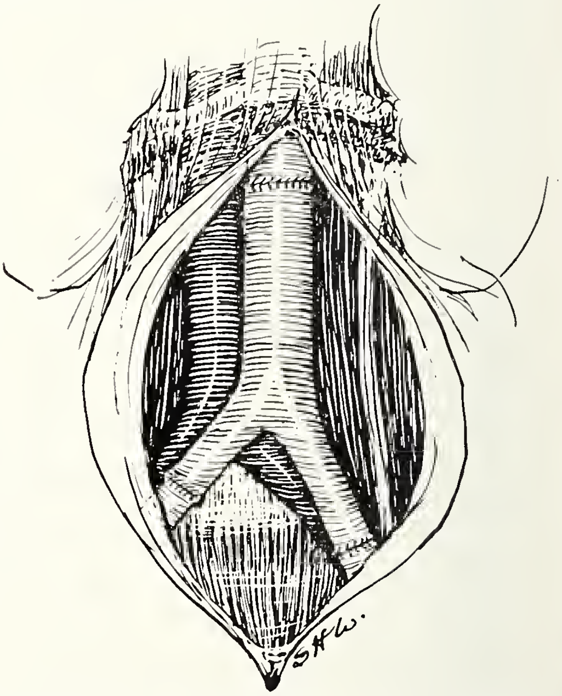

FIGURE 2. Appearance after resection of aneurysm and replacement of homograft.

As the skin was being closed, the patient began to ooze a great deal and continued to do so, soaking three heavy dressings within the next eight hours. The oozing was thought to be the result of the large number of transfusions given. Therapy consisted of calcium gluconate, protamine and vitamin K, as well as additional blood. This oozing gradually subsided over a three-day period and the abdominal distension disappeared.

On the third postoperative day the patient was mentally improved. The left leg, however, began to be cyanotic and a decrease in iliac pulsation was noted.

The patient continued to feel well; however, he became jaundiced as a result of the transfusions and his N.P.N. rose to 68 mg. per cent despite good urinary output. The left leg became pulseless and gangrenous.

On the eighth postoperative day a Kirk amputation of the left thigh was performed because of gangrene, evidently the result of embolic occlusion of the popliteal artery.

Following this procedure the patient's recovery was uneventful and he was discharged on the twenty-fourth postoperative day in good condition.

The patient's postoperative course, although stormy and interspersed with complications, was probably no worse than could be expected, considering his previous history and the severity of the disease. Although the patient lost one leg, he did not lose his life. When he left the hospital his condition appeared to be good.

SUMMARY AND CONCLUSION

1. A review of a case of ruptured aortic aneurysm treated by excision of the aneurysm and insertion of a lyophilized aortic homograft is presented.
2. This type of surgery can save patients who would otherwise expire immediately.
3. When the diagnosis of aneurysm is made, the lesion should be replaced by a graft, preventing the necessity of such emergency procedures as above.
4. When the diagnosis of ruptured aortic aneurysm is made, the patient should receive the benefit of emergency surgery in an institution where aortic grafting may be performed.

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Just How Mature Are You?

Have you learned the three characteristics of maturity? They are the three R's of modern life:

1. Responsibility. Can you assume it?
2. Reliability. Can you be relied upon?
3. Reverence. Do you have respect and affection for worthy things?

The Surgical Approach to Problems of Biliary Disease*

HARRY LEE CLAUD, M.D., F.A.C.S.
Washington, D. C.

It is possible to assemble all those here present under the all-inclusive term of friends. We have a basic educational background, we have a similar life work, we have mutual professional ideals in common.

We are meeting together in the city of Jackson, justly renowned for its genuine hospitality. The description of Jackson which I have most frequently seen and heard is "The Cross-roads of the South." Quite like another "cross-roads"—Athens, the cross-roads of the ancient world—the "A-B-C's" of Jackson consist of Art, Beauty, and Culture.

Naturally, as a physician and surgeon, I consider the field of medicine to be an integral part of true culture. Sons and daughters of Mississippi, you have helped to form a distinct vanguard in the march of American culture and medical progress. Your traditions are great and noble.

It is, at this time, an honor and a pleasure to appear before the Mississippi State Medical Association on the occasion of its centennial annual meeting.

From an anatomic and functional point of view, the intimate relationship of the gallbladder and extra-hepatic biliary ducts with the stomach, duodenum and pancreas makes for frequent association of pathologic conditions of the organs. An accurate diagnosis is essential in the treatment of biliary tract disease for many organic or functional disturbances may produce symptoms simulating those characteristic of this condition. Among these may be mentioned improper mastication, hiatal hernia, peptic ulcer, irritable colon, emotional disorders and heart disease causing functional derangements of various segments of the gastro-intestinal tract. As to those cases due to biliary tract disease, the relief of symptoms and restoration of health can be assured to the great majority of patients to whom surgery is truly indicated.

Much information can be learned from the history of the patient. A well-taken history and complete physical examination must be done as a means of establishing a correct diagnosis. Laboratory procedures and x-ray examinations may be very helpful in establishing the diagnosis. It is important to repeat the cholecystographic study if the symptoms strongly suggest calculus disease, and radiographic examination has been non-revealing. Gallstones in the ducts which might escape detection by orthodox oral cholecystography may be visualized when cholegrafin contrast media is given intravenously.

Biliary disease may be asymptomatic at times, but co-existent with other abnormalities produce similar symptoms. The problems that confront the surgeon when considering the association of gallstones or biliary disease and heart disease are many, but the three most important ones, according to Patterson[1], are 1) "mimicry" which makes differential diagnosis extremely difficult; 2) co-existence, which requires accurate assessment of the role of each condition; and 3) "decision" whether gallstones or biliary disease may aggravate coronary disease.

Differentiation between the two conditions is extremely important, for a patient with coronary heart disease might be subjected unnecessarily to laparotomy, or a patient needing a cholecystectomy might not be operated upon because the symptoms appear to be those of coronary heart disease.

Biliary tract pain is often substernal rather than abdominal. It takes the course along the seventh and eighth thoracic spinal segments and may radiate to the shoulder and down the arms, thus simulating coronary heart disease.

Heart pain is usually referred along the fifth cervical through the fourth thoracic spinal nerves. Correct evaluation is had by painstaking history, roentgenographic studies, and electrocardiogram. There is a tendency of gallstones and biliary disease to co-exist with heart disease, particularly after 50 years of age. Nerve stimuli originating in the gallbladder or common duct may alter the flow of blood through the coronary arteries. Damage to the heart from biliary disease is often reversible if it is corrected early. The decision for major operation on the biliary tract, however, must be made judiciously as fatal coronary occlusion may occur soon after or during operation. Nevertheless, with good anesthesia at our command today, and improved surgical technique, the patient with coronary heart disease will frequently tolerate an operation very well and will be benefited greatly with relief of symptoms.

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*Presented before the Section on Surgery at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

The commonest sign of gallbladder disease is obstruction of the duct by stone or inflammatory edema, and consequent changes in the biliary tree and liver. The extent of damage will depend upon the degree and duration of the obstruction and disease. To my mind, there is no such thing as a silent gallstone, or an innocent one. They may be "sleeping dogs." There are patients who come to us late, after the lapse of 5-15 years, suffering with coronary heart disease, and who have a so-called silent gallstone, and have developed obstruction of the cystic or common duct, thus making operation much more hazardous. Because of this type of case, it is my opinion that gallstones, if and when found, even though symptomless, should be removed.

As a rule I do not advise removal of non-calculus gallbladder, as the results in these cases are often disappointing and cause most of our surgical failures. There are some cases in which operation or exploration of the biliary tract is indicated although roentgenogram does not show stones. In these cases we invariably follow Womack's[2] (and others) concept and strip the cystic duct of fatty tissue and its nervous mechanism and ligate it as close to the common duct as consistent with safety. We further strip the common duct of fat and nerve fibers at the junction of the cystic and common ducts. Many of these non-calculus gallbladders will have common duct and pancreatic pathology ranging from stones in the duct to stricture of the sphincter of Oddi, and in these cases, we open the common duct and dilate by probes or transduodenal direct vision. One should, however, be very sure before operating on the non-calculus gallbladder that all means of examination have been satisfactorily carried out and that elimination of other sources of the patient's complaint have been thoroughly investigated.

I have, at times, had great difficulty determining what is inside a common duct by palpation. Many of the ducts containing stones will be dilated and you will not be able to palpate these stones. I do not believe in opening the common duct unnecessarily, but if you have symptoms that warrant it, and your findings are negative until you get to the common duct, I believe it should be opened, explored, and drained although the duct does not appear to be greatly enlarged. In these cases we also look for periductal disease and frequently find it around the cystic duct. The patient may have had an acute attack of cholecystitis with edema and inflammatory reaction, which may subside and you may find a very acutely dilated cystic duct with adhesions. According to Womack, in these inflammatory reactions around the cystic duct, common duct and gallbladder, you find quite a bit of fibrosis, you get a certain amount of scarring all through it. with neuromas, and in time it can perpetuate the gallbladder syndrome.

The nerve supply of the biliary tract, including the liver, is derived from the sympathetic, vagus and phrenic nerves. 1) The majority of nerve fibers to the biliary tree come from the sympathetic system. These fibers are derived from the greater and lesser splanchnic nerves, rami from the phrenic and vagus nerves joined in with the sympathetic nerves.

According to Raigorodski[3], 2) the hepatic plexus is divided into the anterior and posterior portions and the two are anastomosed with each other by ramifications along the common duct, hepatic artery, and portal vein. The medial nerve of the gallbladder comes from the anterior plexus, passes over the anterior surface of the common duct and hepatic duct, and is anastomosed to the posterior hepatic plexus in the triangle formed between the cystic and hepatic ducts and goes along the medial surface of the gallbladder. The lateral nerve of the

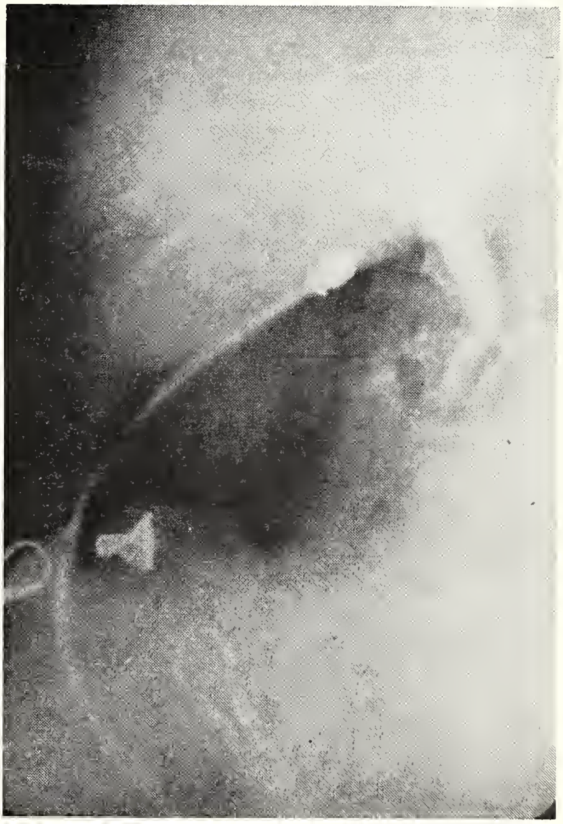

FIG. 1. Cholangiogram on the operating table showing dilatation of the common duct and filling defect having the appearance of a calculus (Diodrast media).

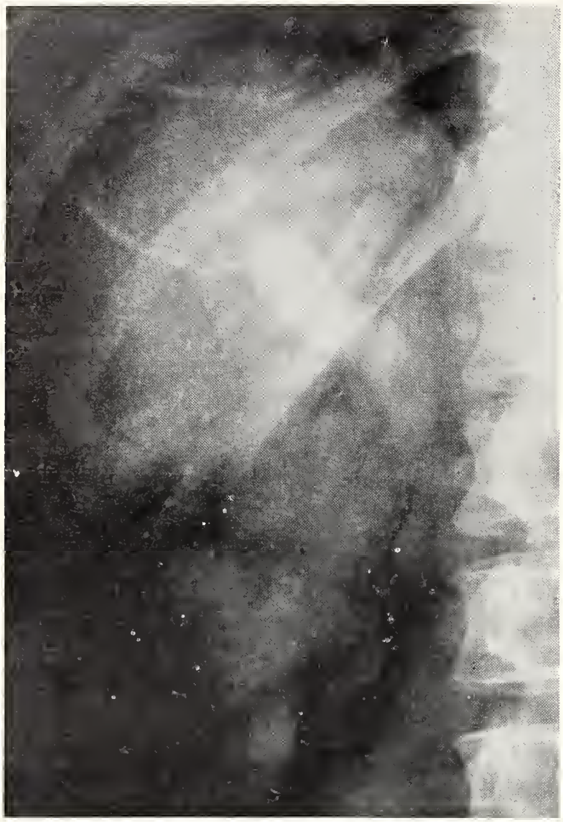

FIG. 2. Intravenous cholegrafin injection showing stone in common duct. Post-cholecystectomy.

gallbladder comes from the posterior portion of the plexus and passes along the lateral surface of the common and cystic ducts to the lateral surface of the gallbladder. One can readily see the delicate network of fibers along the common duct, and these fibers are more numerous in the region where the cystic duct joins the hepatic or common duct.

The distension of the ducts sometimes causes severe epigastric distress; frequently vomiting. This may be demonstrated when a "T" tube is placed in the common duct and irrigated after the patient is ambulatory. It seems logical that stimulation of the nervous system in this particular area should cause epigastric distress and similar symptoms present before cholecystectomy.

Therefore, the importance that we are placing on the nervous mechanism of the common and cystic duct, particularly their function as well as that of the gallbladder is readily apparent.

If we follow the concept of the nervous mechanism about the gallbladder, common duct or cystic duct, we know that after operation a given percentage of these patients will have certain so-called postoperative biliary dyskinesia. We know most of them have residual pathology. Some of them will have stones left in the common duct or have disease of the sphincter of Oddi.

Womack has done several re-operations in which a long cystic stump, with or without stones, with considerable fibrosis and neuromas was found. By removing the stones from the cystic duct, if present, removing the fibrous tissue, and stripping it down to the common duct junction, he has had almost 90-95 per cent relief of dyskinesia.

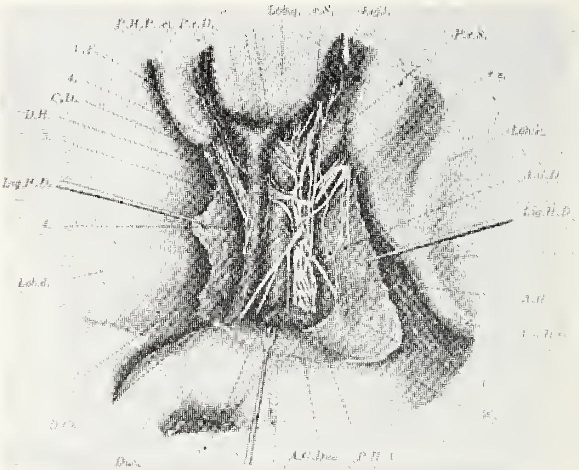

FIG. 3. Preparation of an adult with normal topographic relations seen from in front. Lob.s—left lobe of liver; Lob.d.—right lobe of liver; Lob.q.—quadrate lobe of liver; Lig.t.—lig. teres; W—stomach; Duo.—duodenum; pn.—pancreas; Lig. H. G.—hepatogastric ligament; Lig. H. D.—hepatoduodenal ligament; A. H. –common hepatic artery; A.G.D.—right gastric artery; A.G. Duo.—gastroduodenal artery; r.D.—right branch of the hepatic artery; r.s. and r. Sl—left branch of the hepatic artery; V.P.—portal vein; P.H. A.—anterior hepatic plexus; P.H.P.—posterior hepatic plexus; 1—nerves with the right gastric artery; 2.—anastomosis between the anterior and posterior hepatic plexus; 3.—lateral nerve of the gallbladder; 4.—cystic duct; 5.—medial cystic nerve (After Raigorodsky).

CONCLUSIONS

Experience has convinced us that the success of surgery in biliary tract disease depends primarily on the thoughtful selection of patients for surgery. The big problem is encountered in non-calculus cholecystitis where lies most of our surgical failures.

Cholegrafin IV is discussed as an added means of roentgenographic diagnosis, particularly of diseased conditions of the common duct. Caution in operating without sufficient evidence of gallbladder disease and an investigation of every other possible source of the patient's complaint will obviate most of our poor results in this group.

After decision is made to operate on non-calculus gallbladders, the procedure of choice is careful dissection of the cystic and common duct junction of all fatty tissue containing the nervous mechanism of the gallbladder and common duct, thus interrupting the nervous stimuli that may arise later, and investigation of disease of the common duct to determine the patency of the sphincter of Oddi, as well as investigation of adjacent disease such as peri-ductal lesions and pancreatitis.

There is a tendency of gallstones and biliary disease to co-exist with heart diseases, particularly after 50 years of age. Because of this tendency it is my opinion that gallstones, if and when found, even though symptomless, should be removed before the patient has developed severe coronary disease and other infirmities which make an operation more hazardous.

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Obstetric Morbidity and Mortality: Not Medical Care Alone*

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Chapel Hill, N. C.

IN OUR SOUTHEASTERN portion of the United States uniformly good obstetrical care cannot be given pregnant women when such care is measured in terms of professional care alone. The background, habits, geographic and socio-economic factors are known to all of us and are shared. In reviewing the medical history of Mississippi and North Carolina we find remarkable similarities. A review and a statement should be heartening.

To dwell on familiar ground may we mention a state that has only one city of more than 100,000, whose population is 4,250,000 and has, until recently, hospitals in only 50 of the 100 counties. This state at some time has had eight medical schools, but the oldest survivor is only about 70 years old. One institution (Wake Forest) in 1858 was second only to Yale University in endowment, yet it was only in 1940 that she could establish a four-year medical school. The State University has had three medical schools, the present four-year school having been opened in September, 1952. Duke University, through private philanthropy, was created in 1930. We all know of its remarkable rise in excellence in 25 years. These facts are presented simply to illustrate the importance of economic backing. The father of Mr. Duke started his fortune by selling tobacco to Sherman's soldiers who were quartered in Durham. Wake Forest received the majority of its funds from one of the Reynolds Tobacco officials, Mr. Bowman Gray, and the rest from a devoted and devout Baptist citizenship of North Carolina.

These factors delayed medical education and were reflected in maternal mortality and morbidity. The State University was closed during the Civil War and Federal cavalry horses were quartered in its Old West Building. It has taken the state a long time to recover from the exigencies of a terrific war and prolonged period of occupation. This is easily understood when one recalls that this state had more men under arms than the total of male voters. Yet this is a state that had an established medical society in 1799. Its only means of publication and dissemination of information was the Philadelphia "Repository." The mention of publications recalls Crawford W. Long reporting his experiences with ether in a rural Georgia journal, and that of the Virginia gynecologist, Mettauer, who reported several successful operations for vesico-vaginal fistulas using metallic suture (lead), and how these published articles were either not seen or disregarded by other eminent men. So the lack of an articulate and widespread press did slow the progress of this area.

In describing medical problems during earlier days in this state, Crawford[1] recalls that Mississippi, as did most other Southern states, passed laws that allowed Confederate veterans to practice medicine without examination. Communications were difficult and transportation at times impossible. Colquitt[2] describes the deplorable, if not impossible, transportation conditions of 50 years ago and his statement that "you never heard of an obstetrical patient until you were called." These factors, the scarcity of health centers and hospitals, the severity of diseases and the critical condition of patients when first seen certainly gives credence of the statement of a physician of this period—"I sent my white patients to Memphis and my Negro patients to Vicksburg, but since none ever came back, I quit sending them."

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*Presented before the Section on Obstetrics and Gynecology at the eighthy-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956

†From the Department of Obstetrics and Gynecology, University of North Carolina, School of Medicine.

We have shared mutual setbacks in medical education. A report from the North Carolina Medical Society Committee in reporting on a school in North Carolina in 1885[3]; "Two medical schools have been chartered in this state. The first, located in the backwoods of Robeson County, after a career as harmful as it was possible to be—sending out yearly numbers of men with diplomas to prey upon innocent communities on the South Carolina border—came to an abrupt end by the death of its only professor. The second, located in Wilmington, was abandoned before a course of lectures was delivered."

In 1909 we find a reviewing board with this recommendation regarding a school in Mississippi[4]: "The state laws ought to be promptly amended so as to make such ventures impossible." Thus neither state was completely satisfied with its earlier schools.

On the occasion of the hundredth anniversary of your State Medical Society all of us have reason to be thankful to Doctor Leathers and many others who worked so diligently and persisted in their efforts toward improvement in medical education.

The improvement in maternal morbidity and mortality in North Carolina has been due largely to the efforts of the group of physicians most interested in these special problems, the establishment of the medical schools, the unselfish and purposeful functioning of the State Maternal Welfare Committee and the cooperation of the sponsoring agencies. The following is good evidence:

In 1914 there were 71,931 live births and 524 maternal deaths, while in 1955 there were 116,206 live births and only 100 maternal deaths.

There are now over 1700 maternal death records in the files, over a thousand of which have been scrupulously studied[5].

TABLE I.
MATERNAL MORTALITY IN NORTH CAROLINA,
1946-1950 — 1,000 MATERNAL DEATHS

Cause	*Number*	*Percentage*
Toxemia	264	26.4
Hemorrhage	259	25.9
Embolism	74	7.4
Infection	73	7.3
Cardiac disease	64	6.4
Anesthesia	25	2.5
Other obstetric	103	10.3
Nonobstetric	112	11.2
Insufficient information	26	2.6
	1,000	100.0

The toxemias were first ranking with 26 per cent; hemorrhage is second with 25 per cent, followed by embolism, infection and cardiac disease, each approximately 7 per cent, anesthesia caused 2.5 per cent of the deaths, other obstetric causes 10 per cent and non-obstetric causes approached 15 per cent.

The cause of eclampsia is not known, an accumulation of related data would seem to indicate there probably is no single cause; the parallels of malnutrition, dietary, racial and sociologic background, infections and systemic diseases all participate, and hypertension and vascular and renal diseases are associated with the tendency to pre-eclampsia, which may become true eclampsia. In practically all cases we find inadequate or no prenatal supervision. In treating this syndrome, sedation is generally accepted as the initial basic therapy. Later fluid balance, intake and output, is regulated, followed by induction of labor and delivery. Greater chance of error lies in either undue haste or injudicious delay in attempting delivery. The former is more frequent. Caesarean section in eclampsia has followed an interesting curve. At present with blood banks, antibiotics and other adjuncts, use of the operation is increasing in frequency as definitive therapy; it has always been popular when a surgeon is the obstetric consultant. Where we find several modes of treatment being used in the management of a disease, all are usually equal in their effectiveness. The best treatment of the toxemias is prevention by adequate prenatal care, close supervision and hospitalization and termination of pregnancy when the patient's life, or, we believe, health is in danger. The institution of this regimen is wise in the management of all types of toxemia of pregnancy; age, parity, patient's desires are factors which must be considered. In addition, in this series of studied cases the toxemias were thought to be a contributing factor in the cause of death in 8 per cent of those listed under other causes. We do know that the duration of the symptoms of toxemia reflects unfavorably in the patient's longevity. Forunately, the toxemia incidence is decreasing.

"Hemorrhage" as a cause of death remains fairly constant. The usual background of placenta previa, abruptio placentae, ruptured uterus, operative interference, both vaginal and abdominal, and abortion follow average figures, but the analysis of deaths from ectopic pregnancy is revealing. In approximately 50 patients dying from hemorrhage associated with ectopic pregnancy only half had surgery of any type, confirmation procedures were seldom used and transfusion, if used at all, was delayed, for various ascribed reasons, until too late. It is disturbing to find six patients in five years pronounced dead from intrapartum and postpartum hemorrhage when first seen by a physician. Recently, the mechanism of blood clotting has been more extensively re-studied and the condition of hypofibrinogenemia emphasized in postpartum hemorrhage. In reviewing these deaths from hemorrhage, Donnelly could find only four possible cases and actually only one that appeared valid. It is a rare condition but should be borne in mind. Crude tests for blood clotting are at hand and blood fibrinogen determinations are now available in most centers. Whole blood, plasma and commercial fibrinogen are used in combating the condition. Fortunately, the increased number of small blood banks in modest centers and larger blood banks in every section of the state is favorably influencing the death rate of hemorrhage from all causes. Now that four national agencies have joined with the Red Cross in the "blood program," a more favorable distribution should be assured.

Anesthesia and analgesia certainly have a place in the management of labor, yet obstetric anesthesia has always been regarded in a somewhat casual fashion. The night supervisor, delivery room nurse, spare house officer, available doctor and even the doctor conducting the delivery are variously called on for the important function of giving "the anesthetic." This inept, though at times necessary practice can account for 2.5 per cent of maternal deaths. We found nine instances of death where spinal anesthesia was given by the doctor himself because "no anesthetist was available," a surgical dose being used in five cases. Neither the doctors nor the hospital are happy with such a condition. With the increase in physicians and full-time anesthetists, the obstetrician now has a fully sympathetic ally and can expect a reduction in the incidence of this tragic occurrence.

In a background which predisposes to toxemia we are likely also to find an increase in all types of infection. In obstetrics this is especially true. Although the antibiotics and blood availability have markedly reduced the mortality rate in puerperal infection, it remains a constant hazard accounting for approximately 20 per cent of the total. It is unnecessary to dwell on the cause; the treatment is known to all. Eternal vigilance and the maintenance of an "aseptic consciousness" greatly relieve the doctor's responsibility. It is most difficult to dissociate embolism from infection; a number of deaths ascribed to "embolism" certainly have infection as a background. In spite of every effort, this tragic complication cannot be entirely eliminated.

Donnelly[6] has studied these figures from many approaches and a tragic fact has been the associated fetal wastage. One of the biologic functions of the married woman is that of reproduction, yet this analysis reveals that with this maternal loss is a fetal salvage of only 49 per cent not including neonatal deaths. Thus the loss is compounded.

State	*Pct. Non-White*	*Total Deliveries*	*Mortality per 10,000 Live Births*	*Delivery (pct.) Hosp.*	*M.D. at Home*	*Wife*
North Carolina	32.9	35,555	21.7	35.0	30.0	35.0
Mississippi	56.2	37,318	30.8	17.0	21.0	62.0
District of Columbia	41.3	8,190	8.5	97.0	3.0	0.0
Illinois	10.0	18,917	12.1	78.0	21.0	1.0
Pennsylvania	7.5	16,861	16.0	91.0	9.0	0.0
New York	8.8	26,504	20.8	96.0	3.0	1.0
California	8.3	20,414	13.7	96.0	3.0	1.0

It is a recorded fact that the maternal mortality rate is highest in our Southeastern area. It is revealing to document other pertinent data[7].

In the United States during the period of 1946-51 there were 12,923 major governmental and private fund grants for medical research totaling 135,000,000 dollars. There were 6,634 recipients, 80 per cent receiving funds from one source only and 80 per cent of the grants were less than 50,000 dollars. In the Southeast 55 institutions received 1,086 grants for a total of 10,400,000 dollars, representing 13 per cent of the total funds. Ten states received 75 per cent of the total funds. North Carolina ranked 15th among the states and received between 1.5 and 2,000,000 dollars. Mississippi was the lowest group, receiving less than 100,000 dollars.

Of the total funds only 1,795,000 dollars were allocated to the vague category of "pregnancy and newborn." It is obvious that benefit to the pregnant female and the newborn would come indirectly from other studies in various other categories. However, little, if any, of these funds can be translated in terms of patient care. Furthermore, if we consider the low figure for our area and the low grants to our separate states and relate these to our frightful morbidity and higher mortality in pregnancy and newborn, it is not remarkable that we at times appear unhappy with our progress in the solution of our problems.

IN 1946-51 THERE WERE 12,923 GRANTS TOTALING $135,000,000
6,634 INVESTIGATORS—80% ONE SOURCE ONLY
80% INVESTIGATORS LESS THAN $50,000

	Institution	*No. Grants*	*Total*
Mid-East	297	4,524	$51,500,000
Central	124	2,828	29,800,000
New England	59	1,739	18,500,000
Far West	38	1,080	12,200,000
Southeast	55	1,086	10,400,000

Northwest	26	434	5,000,000
Southwest	20	289	2,200,000

5 STATES—10 OR MORE MILLION
8 STATES—2 TO 10 MILLION
NORTH CAROLINA—15TH
10 STATES RECEIVE 75% OF TOTAL
SOUTHEAST RECEIVES 13% OF TOTAL
MISSISSIPPI RECEIVES LESS THAN $100,000
"PREGNANCY AND NEWBORN" — $1,795,000.

PERCENTAGE OF NON-WHITE POPULATION IN THE UNITED STATES AND EACH GEOGRAPHIC DIVISION, 1950
(Population enumerated as of April 1)

UNITED STATES	11.0
New England	2.0
Middle Atlantic	7.0
East North Central	6.5
West North Central	3.5
South Atlantic	24.0
East South Central	23.0
West South Central	16.5
Mountain	5.0
Pacific	6.0

If one transposed the United States maternity mortality statistics to this tabulation it would become immediately evident that the highest maternal mortality is in the highest nonwhite areas. Is this a simple coincidence? Do pellagra and toxemia simply parallel each other? Do the placenta, the pituitary, and the ovary in the female in New England differ from that of the female in Alabama? Temperature, weather, rainfall, humidity, and other regional and seasonal variables have been duly recorded without conclusive evidence. Are vitamins an exogenous hormone? If not, can the bodily economy maintain an adequate hormone level without penalizing the female living on a "Goldberg diet"? We have seen and recorded the paradox of maternal mortality, especially the toxemia deaths, in relation to the economic fluctuations. In the "lean years" when cotton and tobacco are not profitable the rural dwellers and "sharecroppers" do have a vegetable garden, cow, and chickens. They are on "relief" and are eating more wisely. The death rate is lower. In the "years of plenty" all hours and interest are devoted to the "cash crop." The county store or comissary substitutes for the garden and salt port ("fat back"), molasses, and corn meal are the stomach-satisfying articles of diet and the energy-producing factors. Rancid fat is not considered a vitamin-negating substance, nor soft sweet carbonated drinks a remarkable substitute for citrus drinks. The triad of "ill-housed, ill-clothed and ill-fed" is deep in the feeling, and we hope understanding, of the South. They are now becoming increasingly manifest in the metropolitan areas, where citizens of the United States are flocking and a shift in population trend is evident. The hospital facilities, providentially, are better and the economc dietary habits are more favorable. Day-old white bread, slightly blighted vegetables, fish and other such articles are readily available at a reduced cost. Thus the defenses against fetal wastage, toxemia, infection, and hemorrhage are fortified and should be reflected in more favorable statistics in these areas.

In North Carolina we feel that our combined efforts have resulted in:

1. A substantial reduction in the maternal mortality rate.

2. An increase in requesting and using consultants.

3. A greater consciousness on the part of the "Hospitals" of the necessity of an organized and functioning obstetric staff.

4. Increased interest by the anesthesiologist in anesthesia and analgesia of the obstetric patient.

5. Widespread distribution of blood bank service.

6. Recognition of socio-economic, dietary and hereditary factors and associated systemic diseases as definite influences that may alter the course of the pregnant female.

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Wise men are instructed by reason; men of less understanding by experience; the most ignorant learn by necessity.

It is easy to find fault; appreciation requires intelligence and character.

The Use of Adrenal Steroids in Infectious Diseases*

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The powerful anti-inflammatory properties of adrenocortical hormones are well known from laboratory and clinical use. During the flurry of their early application to diseases characterized by inflammation, an increased susceptibility to infectious diseases was noted. Complicating infections developed during steroid therapy without the usual clinical signs. Such hidden infections are well known to the medical profession and have resulted in cautious usage of these potent agents. As a result of such unfortunate experiences the adrenocortical hormones were believed for a time to be contraindicated during infectious diseases.

Within the last few years the literature has contained reports of administration of adrenocortical hormones in certain types of infections. The trend toward their wider usage is understandable in view of their potent antipyretic and anti-inflammatory effects. There can be no doubt that such pharmacological properties make them extremely desirable agents in acute overwhelming infections. Since there is a definite trend for more frequent usage in infectious diseases, it is worthwhile to review their effects on inflammation and to point out their proper place in therapy.

There is good experimental evidence that the adrenal steroids modify inflammation at several levels as outlined below. The antipyretic action of cortisone has been well documented. Recant and coworkers first demonstrated that pre-treatment with cortisone blocked pyrogen fever produced in rabbits by typhoid vaccine[1]. Atkins and others have subsequently shown this effect to be mediated centrally through the heat regulatory centers[2].

Although it is frequently not appreciated, the adrenal corticoids are of importance in regulating blood pressure. Rukes and Forsham have recently shown that hydrocortisone dramatically restores the effectiveness of the pressor amines in profound clinical shock[3]. In experimental animals the adrenal steroids significantly enhance or preserve arteriolar tone[4].

A large amount of experimental evidence is devoted to the suppressive action of hormones in acute and chronic inflammation. There is little doubt that antibody production is seriously depressed by prolonged administration of the adrenocortical steroids[5]. The significance of impaired production of antibodies in resistance to infection needs no emphasis. Similarly the antibacterial efficiency of the reticuloendothelial system is seriously impaired by administration of the cortical hormones. Thomas et al. demonstrated the serious consequences following hormonal depression of the reticuloendothelial system in experimental infectious diseases[6].

Finally, cortisone has been shown to suppress markedly cellular exudation about acute and chronic inflammatory lesions. Glaser and many others demonstrated the paucity of polymorphonuclear leucocytes in experimental acute bacterial infections[7]. Such phagocytic cells represent the first line of defense against invading organisms. There is further evidence, as yet inconclusive, that adrenal steroids significantly impair the ability of phagocytes to kill or dispose of ingested organisms. Phagocytosis *per se*, however, is not influenced by the hormones.

With the above as background material, let us examine the rationale for steroid therapy in infectious diseases. Before going further, it should be pointed out that Jawetz has shown these agents have no inhibitory or antagonistic effect on the action of chemotherapeutic agents against infectious organisms. In laboratory animals cortisone enhanced infections only at minimal inhibitory levels of chemotherapeutic agents. When higher drug levels were attained, cortisone did not impair bacterial control[8].

TABLE I

Indications for Steroid Therapy

A. Overwhelming inflammation
    1. Pneumonia with multilobe involvement
    2. Progressive infectious hepatitis
    3. Tuberculous meningitis
    4. Chemical pneumonias

The following indications for steroid therapy of infectious diseases have been followed at the University Hospital. In Table I are listed those conditions in which overwhelming inflammatory reactions endanger survival of the patient. Steroids are of value in pneumonia when multilobe or widespread involvement of the lungs threatens life by reducing ventilatory capacity. The hormones in this instance reduce the quantity of inflammatory exudate and thereby improve aeration. Wagner et al. have recently reported a series of patients with pneumococcal pneumonia treated with penicillin and hydrocortisone. There was no significant difference in clinical recovery between the two groups of patients, an indication that the hormones did not have a detrimental effect[9]. There now seems to be good evidence that the steroids are of value in progressive infectious hepatitis. Therapy should be reserved for cases in which there is delayed improvement of liver function. Early administration of the hormones should be avoided, however, since relapses may be increased[10]. In certain cases of tuberculous meningitis the adrenocortical hormones may be beneficial, although evidence is not yet conclusive. It is stated that such treatment may hasten clearance of subarachnoid block developing during antituberculosis therapy[11]. Routine usage of the adrenal hormones in tuberculous meningitis should be avoided. Finally, although not an infectious process, steroids may reduce the pulmonary edema of chemical pneumonia resulting from alveolar contact with volatile irritants.

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TABLE II

Indications for Steroid Therapy

B. Intoxication associated with vascular collapse
   1. Typhoid fever
   2. Rickettsial diseases
   3. Meningococcemia
   4. Sepsis

In Table II are listed indications for steroid therapy in bacterial intoxications associated with vascular collapse. Smadel showed that adrenal steroids were of great benefit to patients with typhoid fever associated with extreme intoxication[12]. Since the diagnosis of typhoid fever is usually made early in the course of the disease and specific therapy instituted promptly, adrenocortical hormones are not often indicated. In the occasional patient with high fever, delirium, and peripheral vascular collapse the steroids are frequently lifesaving. Cortisone has been shown to be of definite benefit in Rickettsial infections. In particular, Rocky Mountain spotted fever has been ameliorated by cortisone along with specific chemotherapy early in the course of the disease[13]. Edema, hemorrhage, and vascular collapse are prominent features of the disease as a consequence of proliferation of organisms within endothelial cells. Cortisone apparently protects the endothelium in some unknown way. In patients with meningococcemia and vascular collapse, the Waterhouse-Friderichsen syndrome, steroid replacement therapy is mandatory. Unfortunately cortisone and hydrocortisone have not increased survival dramatically in this disease. Finally, overwhelming sepsis is included as an indication since intoxication is almost always present. Bacteremia due to Gram negative organisms is often attended by shock.

When clinical use of steroids is contemplated, several additional points should be considered. For instance, how great is the need for hormonal therapy? A critical appraisal of the patient must be made with the risk of steroid administration weighed against the need of therapy. Such an evaluation requires considerable clinical acumen. The decision must be made prior to physiological deterioration if maximal benefit is to be obtained. A classical example is the patient with meningococcal meningitis. Steroid therapy should not be instituted in all patients with meningococcemia in the absence of peripheral vascular collapse. The experimental work of Thomas indicated that pretreatment with cortisone increased the susceptibility of rabbits to the generalized Shwartzman reaction induced by meningococcal endotoxin[6]. Although there is no good clinical data indicating an increased incidence of adrenal hemorrhage following cortisone administration to patients with meningococcemia, such a possibility must be kept in mind. For that reason patients with meningococcemia must be followed carefully with blood pressures being taken at frequent intervals to anticipate the onset of vascular collapse. Only blood pressure begins to fall, intensive steroid therapy is obligatory.

When cortisone therapy has been elected, a specific bacteriologic diagnosis is to be desired. Identification of the infecting organism aids good antibacterial therapy. Clinical experience tends to conform the experimental findings of Jawetz in this regard[10]. Pneumococcal meningitis, for example, has been successfully treated with a combination of steroids and large doses of parenteral penicillin. The dangers of steroid therapy are greatly decreased by specific chemotherapy.

In the instance where the identity of the infecting organism is unknown, wide chemotherapeutic coverage is desirable whether or not steroids are used. Such is the case in overwhelming sepsis when blood cultures have not had time to reveal the type of organism involved. A combination of bacteriocidal and bacteriostatic agents combined with steroids in this instance may be lifesaving.

The physician must be watchful for the emergence of secondary complications during steroid therapy. Hidden infections, such as abscesses, empyema, urinary tract infections, may arise without producing the usual clinical symptoms during steroid therapy. For that reason treatment with the hormones should be terminated as soon as maximum benefit has been achieved.

It is generally agreed that hydrocortisone is the steroid of choice in treating acute infectious problems. Since the patient is usually unable to take oral medications, the parenteral form is to be desired. Aqueous hydrocortisone may be given rapidly intravenously in a small volume. Hydrocortisone in alcohol should be diluted to 500 ml. and administered slowly intravenously. In adults, up to 300 mg. in the first 24 hours may be required. Thereafter, dosage may be dropped to 200 mg. the next 24 hours and 100 mg. the following 24 hours. It is sometimes necessary, however, to maintain a higher level of therapy, especially in the instance of peripheral vascular collapse. As soon as maximum benefit has been achieved, steroid therapy should be reduced rapidly, preferably by the oral route. At the termination of steroid therapy ACTH should be administered for 24 to 48 hours to stimulate return of adrenal function. The newer synthetic steroids with low sodium retaining properties have been found to exert similar anti-inflammatory effects. In the instance where salt retention is a problem, prednisolone or prednisone may be substituted for hydrocortisone.

SUMMARY

Adrenal steroids are potent pharmacological agents capable of producing great benefit or great harm. Their proper usage is the responsibility of the physician. The physician must always be aware of the effects of the hormones on the adaptive and the defensive mechanisms of the patient. With proper management the physician may employ these agents with great benefit. Indiscriminate administration, however, is extremely dangerous. Few pharmacological preparations available to the medical profession exert such profound metabolic effects. They should be used with caution and only after careful consideration of the clinical problem.

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OFF KEY: "But, madam, I'm afraid you're making a mistake. I am doctor of music."

"I know that," replied the sweet young thing, "and that's why I came to you. You see, I've got a terrible singing in my ears."

Polyps of the Rectum and Colon

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The importance of polyps of the colon and rectum has been the subject of many papers in the surgical literature, and rightly so for it has been shown that these tumors are premalignant lesions. Since carcinoma of the colon is one of the most frequent malignancies in both sexes, it becomes all the more important for us to diagnose and treat these polyps before malignancy has occurred. Many persons have undoubtedly been spared a resection, colostomy, or death by the treatment of polyps while they were still benign.

Christianson and Tenner[1] reported from a cancer detection center on 2,226 new patients who were proctoscoped as part of the routine examination, and adenomatous polyps were found in 274 cases (12.3 per cent). Binkley[2] reported an incidence of 6.4 per cent in 2,912 patients in a similar detection center. Enquist and State[3] reported some interesting findings from the Cancer Detection Center of the University of Minnesota Hospital. Their study covered the examination of 3,364 symptom-free, apparently well individuals forty-five years of age and older for a three-year period. The following four tables are the result of this study:

INCIDENCE OF POLYPS IN DIFFERENT AGE GROUPS

Age Groups	*No. of Pats. Examined*	*No. of Pats. With Polyps*	*Pct. of Pats. With Polyps*
45 to 54 years	1,628	296	18
55 to 63 years	1,202	219	18
64 plus	534	65	12

Enquist, I. F., and State, David: Rectal and Colonic Polyps, Surg: 32:696, Oct., 1952.

SITE OF POLYPS

	No. of Lessions	*Per Cent of Polyps*
Lesions proximal to the Distal 25 cm.	32	3.6
Lesions in distal 25 cm.	868	96.4
Total	900	100.0

Enquist, I. F. and State, David, Rectal and Colonic Polyps, Surg: 32:696, Oct., 1952.

MULTIPLICITY OF POLYPS SEEN PROCTOSCOPICALLY

	No. of Patients	*Per Cent of Total Patients with Polyps*
Single Polyps	388	67.3
Multiple Polyps	188	32.7

Enquist, I. F., and State, David, Rectal and Colonic Polyps, Surg.: 32:696, Oct., 1952.

RELATION OF MULTIPLE POLYPS FOUND PROCTOSCOPICALLY TO THE INCIDENCE OF POLYPS IN THE REMAINDER OF THE COLON

	No. of Pats.	*No. with polyps Proximal to 25 cm.*	*Per Cent*
Pats. with single polyps by proctoscopy.	388	15	3.8
Pats. with multiple polyps by proctoscopy	188	10	5.3

Enquist, I. F., and State, David, Rectal and Colonic Polyps, Surg.: 32:696, Oct., 1952.

In a series of 352 polyps reported by Castro[4] 15 per cent showed evidence of malignancy when first seen. Polyps are frequently found in association with carcinoma of the colon, and the distribution of polyps and caricinoma is strikingly similar. DeMuth el al[5] reported the following interesting observations regarding the distribution of polyps and carcinoma of the rectum and colon over an eight-year period.

SITE	POLYPS	CARCINOMA
Rectum and Sigmoid	143 (61.2%)	136 (47.6%)
Descending Colon	63 (26.9%)	74 (25.9%)
Transverse Colon	9 (3.8%)	12 (4.2%)
Ascending Colon And Cecum	14 (6.0%)	39 (12.9%)

DeMuth, W. E., el al, Adenomatous Polyps of the Colon and Rectum, 94:195-199, Feb., 1952.

Polyps are most commonly found in the cancer age group, but may be found at any age. Further evidence of the malignant potentialities of these tumors is the fact that practically all stages of change from benign adenoma to carcinoma in situ to frank malignancy with invasion has been demonstrated in polyps.

Polyps are frequently multiple. In addition to the findings of Enquist and State, DeMuth's[6] series of 234 patients showed more than one polyp was present in 33 per cent and more than two in 18 per cent. Other series have produced similar figures. Therefore, the finding of a single polyp demands diligent search for others.

The majority of polyps are asymptomatic and are demonstrated by the inclusion of proctoscopy as part of a routine, or its use for other indications. Only 20 to 25 per cent have bleeding which brings them to the doctor's office. Profuse bleeding is rare in adults. It usually consists of small dark, stringy streaks of blood passed on or with the stool, but may be bright red or in the form of small dark clots.

The most valuable diagnostic aid is the proctoscope. Sixty to eighty per cent of these lesions are within reach of the 25 CM scope. Above this point, the colon x-ray must be relied upon to demonstrate the tumors. It is surprising how often very small polyps can be demonstrated by a good radiologist. It is important to emphasize here that double contrast barium enemas using an air and barium mixture, plus good preparation of the patient, is essential for adequate examination. My personal preference is the use of a solid column of barium first, then having the patient evacuate this and follow with the double contrast technique. Quite frequently repeated examination is necessary before the polyp is shown. On the other hand when a defect is apparent in the colon on x-ray it is mandatory to repeat the examination and prove its persistence before colotomy is done. Sometimes a small bit of stool or mucus will simulate a polyp. Tumors of the rectum itself cannot usually be demonstrated by x-ray.

When polyps are found it is usually necessary to biopsy them for pathological examination. Small polyps may often be removed *in toto* with biopsy forceps, and the base fulgurated. If it is benign this represents adequate therapy. Large pedunculated polyps may be removed with the electrosurgical snare. On occasions large sessle polyps in the rectum can be surgically removed with an ellipse of surrounding mucosa and the resulting defect closed with a suture.

Polyps located above the peritoneal reflection call for more judicious treatment since the danger of perforation of the bowel is a real one. It is quite easy to perforate the thin wall of the colon. For this reason if there is any question as to whether the polyps can be removed safely through the proctoscope, they should be removed through a colotomy where complete control is possible.

When polyps are located in the colon above the level of the proctoscope, colotomy should be done and the lesion excised. A frozen section should be obtained, realizing that this is not too accurate an examination, but one where frank malignancy may be demonstrated. If malignancy is demonstrated then a radical resection should be done. At the time of the colotomy the bowel should be examined in both directions by using a sterile proctoscope, and if other polyps are present they may be treated by fulguration, excision, or resection as the case demands.

Some authors have recommended resection for all polyps. This seems a bit radical since the majority are benign and resection is too much of an operation for benign polyps and too little an operation for a carcinoma. Should multiple polyps be present in a given segment of bowel, however, then resection is the procedure of choice. These patients should be followed at regular intervals, ideally for the rest of their lives. Judd and Carlisle[6] reported on the follow-up of 246 consecutive cases and found that additional polyps developed later in 28 per cent in from one to 13 years, and usually in the same segment of bowel. The recurrence rate was highest when multiple polyps existed. From their findings they recommended that more serious consideration be given to extensive segmental resection or subtotal colectomy in the treatment of these adenomas.

Polyps of the colon and rectum also occur in children. The usual symptom produced is painless bleeding. Kerr[7] reported one hundred cases seen in his practice, in 68 of whom there was a single polyp and in 32 there was more than one polyp. Thirteen of these cases had one or more polyps above the level of the 25 CM proctoscope, but eight of this number also had one or more polyps which could be seen by the proctoscope. Usually where multiple polyps were present there were only two or three. In this series severe bleeding, anemia, obstruction, and intussusception were encountered. Carcinoma developed in two cases. Severe bleeding usually results from self amputation of the polyps, an event which occurred eighteen times in this series. Treatment is by fulguration or dessication in the lower bowel and by colotomy above this level. Again it is necessary to mention the importance of the level of the peritoneal reflection in this regard.

Villous tumors, or papillomas, of the rectum and colon present another problem. These tumors are much less common than the adenomas, but certainly are not rare. They appear as soft, lobulated tumors with papillary or villous projections and are usually attached to the bowel wall by a wide base. Oftentimes they are very large and may actually encircle the bowel wall. They occur most frequently in the rectum and rectosigmoid, and are found usually in elderly adults. They have a tendency to produce mucus, so that the usual complaint is diarrhea consisting of bloody tinged mucus. The incidence of malignancy in these tumors when first seen has been estimated to be 10 to 20 per cent.

Small villous tumors in the lower rectum which lend themselves to total excision may be excised, and if no malignancy is demonstrated by the pathologist no further treatment is necessary. However, these lesions have a tendency to recur so that careful long time follow-up is essential. Tumors above this level should be treated by anterior resection.

Large villous tumors of the rectum present more difficult problems. Because of the high incidence of malignancy, and because a biopsy is often inadequate to tell whether it is benign or malignant, some authors advocate treating all these tumors as malignant. Malignancy may be present in an area not removed by biopsy. Fansler[8] and others feel that when possible total biopsy by the posterior approach to the rectum should be done, and subsequent treatment then be determined. This latter method seems to be a most logical procedure, though one must not forget that complications such as a difficult fistula may develop following a posterior approach to the rectum. Nevertheless, an abdominoperineal resection will not have been done for a benign tumor and if malignancy is present one can subsequently be done. Another useful operative procedure which may be indicated in some of these tumors is a pull-through type procedure, or resection with an endo-anal anastomosis, thus preserving the sphincter mechanism. When malignancy is present, however, abdominoperineal resection is usually the surgical procedure of choice.

SUMMARY AND CONCLUSIONS

Polyps of the colon and rectum occur frequently, and have been proved to be forerunners of carcinoma. For the most part, they lend themselves readily to detection. By the increased use of proctoscopic examination and the colon x-ray as part of the routine physical examination these lesions can be diagnosed before carcinoma has arisen. Adequate treatment will then eliminate these tumors, and thus achieve the ideal of cancer therapy, which is prevention of its development.

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INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

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JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center .... Surgery

CARDIOLOGY

Errors in Evaluation of the Severity of Hypertension, by Schroeder and Perry. *American Heart Journal,* Vol. 51, page 776, May, 1956.

These authors, representing the Hypertension Division of the Department of Internal Medicine, Washington University School of Medicine, have presented the fact that a great many drugs and procedures will affect arterial hypertension favorably insofar as the level of blood pressure is concerned. They also state that any therapeutic procedure vigorously pursued by physician and patient may cause a change in the blood pressures measured by the physician. References are given to show that casual readings made under tension of a visit to a physician's office may be erroneously high, and they make reference to a previous study that they have done to moment variations in blood pressure dependent upon respiratory variations. This present report concerns a group of patients, all of whom might have responded well to *any* therapeutic régime, provided it was carried out vigorously with adequate cooperation between patient and physician, and its purpose has been to point out the necessity of carefully screening individuals to whom potent anti-hypertensive drugs are to be given, in order to be sure that sustained hypertension is actually present.

Patients were selected only after being referred by other physicians for control of what was believed to be severe and sustained hypertension of considerable duration. On first consultation, blood pressure was measured and in 15 cases among 247 admissions an error in judgment was made and the hypertension was considered by the referring physician and by them to be severe and sustained enough to warrant the use of ganglionic blocking agents. After hospitalization, the following interesting findings were established: 1) that the nurse's recording of the patient's blood pressure was invariably lower than the physician's noted level; 2) that under the influence of hospital routine all 15 of these patients within two to six days achieved a normal blood pressure, and it appears quite probable that if these patients had become accustomed to having their blood pressures measured frequently, significant results would have been produced by any drugs or procedure. These observations also emphasize that any single reading of blood pressure is, at the very best, an approximation subject to interpretation by various other more stringent diagnostic procedures. When falls of diastolic pressure 20 to 40 mm. of mercury occur as a result of a person other than a physician measuring it, the vascular variability exhibited by some individuals become obvious. If the blood pressures of these patients had been measured daily rather than every four hours, the changes might not have been as great. There may be such things as "manometric reflex" and patients sensitized to the existence of their own hypertension. When the cuff is wrapped about the arm, intense neurogenic vasospasm may occur before the examiner has time to inflate it. Furthermore, the act of compression of the cuff may raise the blood pressure. In such an event, a false hypertension would be exhibited and mislead the physician in his evaluation of the patient for treatment.

Comment: This is a well-documented article by authorities in the field of hypertension and certainly confirms the practicing physicians' impression of the following three findings: 1) The soothing effect of the nurse as exhibited by the lower recorded values when she measures the blood pressure. 2) The rapid fall to normal pressures from rather impressively elevated systolic and diastolic levels under any *routine* of care or medication in a certain group of patients. 3) The existence of a reflex hypertension conditioned by the placing of the blood pressure cuff or possibly the inflation of the blood pressure cuff. Obviously no patient should be started on more than the mildest anti-hypertensive medication until a baseline of blood pressure is achieved by the physician.

When you make your job important it will return the favor.

PEDIATRICS

PROPHYLACTIC SULPHAMIDINE IN CHILDREN SUBJECT TO RECURRENT INFECTIONS OF THE UPPER RESPIRATORY TRACT. J. B. Burke, Brit. M. J. 1: 538-541 (March 10) 1956 (London, England.)

Prophylactic therapy with sulfonamides was tried in a group of 60 children for whom tonsillectomy was planned because of recurrent upper respiratory tract infections. In the eight-month period between August, 1954, and May, 1955, half the patients received 0.5 gm. of sulfamidine daily and half calcium tablets for the first four months, after which time the agents administered were reversed for the two groups. Thus, each child acted as his own control. Of the 48 who completed the trial satisfactorily, 28 fared better with sulfamidine, 3 fared worse, and in 17 there was no appreciable difference. During the prophylactic therapy 25 acute infections were recorded, absence from school totaled 30 weeks, and the family doctor was called to treat 25 illnesses. The corresponding figures during the administration of the placebo were 60 acute infections, 80 weeks lost from school, and 41 illnesses requiring treatment by the doctor. Tonsillar hypertrophy and cervical adenitis were favorably influenced by chemoprophylaxis, but there was no appreciable effect on nasal obstruction or the incidence of colds. Chemoprophylaxis is worth a trial as an alternative to tonsillectomy in children subject to recurrent upper respiratory infections. There are a number of reasons why it is superior to prophylaxis with penicillin. If instituted promptly, chemoprophylaxis would result in a reduction of the number of children requiring tonsillectomy.

The suggestions and experiences of these authors are worthy of serious consideration.

It is our experience that both the sulfonamides and penicillin, either combined or alone, are well worth the trial of any physician treating children with infections of the upper respiratory tract.

If the parents of children who have frequent attacks of upper respiratory infections would see their pediatrician immediately, there would be little difficulty in preventing any serious trouble.

There is no doubt but what too many tonsils have been removed in the past. There would be little infection of the ears, and practically the mastoids, if these cases were treated promptly in the beginning.

SURGERY

PEPTIC ULCER

So much has been written about peptic ulceration and its management that the value of further comment at this time might be questioned. However, there are three reasons why this disease is considered in this month's column. First, it remains a problem of considerable magnitude to a large segment of the practicing medical profession. Second, our knowledge concerning this disease continues to unfold. Third, certain principles of surgical management of the complications of peptic ulcer are beginning to receive general acceptance.

Etiology of Peptic Ulcer

Acid-Pepsin Factor

Practically speaking, most duodenal, marginal, lower esophageal, and some gastric ulcers are due to an elevated acid-pepsin digestive activity of the gastric secretion. Both medical and surgical therapy are aimed at reducing the levels of the acid-pepsin activity—chiefly of the acid, however, based on the accepted dictum "no acid, no ulcer."

Phases of Gastric Secretion. It is now recognized that there are at least three phases of gastric acid secretion — the cephalic (mediated by vagus nerve), gastric (stimulated by the passage of food over the pyloric antrum), and the intestinal. The intestinal phase represents a minor segment of the gastric secretion, however, and thus our attention can be directed toward the first two, namely, the cephalic phase and the gastric phase.

The Emotional Background of Peptic Ulcer

Since peptic ulcer is more prone to develop during periods of emotional stress (which increases gastric acid secretion by way of nervous stimulation over the vagus nerve) atrophine, banthine, and probanthine have been used with variable success to diminish the cephalic segment of acid secretion. In addition, light sedation and quiet surroundings are also employed to reduce the impulses transmitted to the vagus nerve from the cerebral cortex. Moreover, physicians have long used neutralizing compounds and frequent feedings successfully to combat gastric acidity in ulcer patients. It is now appreciated that most cases of peptic ulceration are largely the result of a psychosomatic disturbance which results in increased gastric acidity with consequent mucosal ulceration. Even so, since many individuals with high gastric acidity do not develop ulceration, there are doubtless other factors, perhaps the gastric secretion of protective mucus, which have to do with whether or not ulceration occurs. Since the basic personality of the patient can rarely be changed, the primary aim of medical therapy is to improve the adjustment of the individual to his life-situation and to neutralize the increased gastric acidity.

Gastric Ulcer. Brief comment should be made regarding the definite differences which exist between many gastric ulcers as compared with most duodenal ulcers. Whereas gastric ulceration may be due to increased acid-peptic activity, this is by no means always so. In fact, many patients with gastric ulcer have a normal or even absent gastric acidity, and their personality is not of the striving type so often encountered in patients with duodenal ulcer. Moreover, gastric ulcer is more frequently seen in older age groups and may undergo malignant degeneration, which duodenal ulcers almost never do. Therefore, it is perhaps not surprising that many observers look upon duodenal ulceration as representing a pathologic process fundamentally different from gastric ulceration.

Finally, since ulcers of the colon may be due to a number of different etiologic factors, it would appear reasonable to assume that ulcers of the stomach and duodenum may be due to a variety of causes.

THE ROLE OF SURGERY IN THE MANAGEMENT OF PEPTIC ULCER

Surgical therapy should be used only for the complications of peptic ulcer. Medical therapy should suffice for the management of uncomplicated ulcer, leaving surgery for patients whose complications constitute a genuine indication for surgical intervention. For let it be clearly understood that gastric surgery does not constitute an unmixed blessing and, if performed for inadequate reasons, may render the "cure" worse than the disease.

The Complications of Ulcer

The complications of peptic ulcer are hemorrhage, perforation, obstruction, malignant degeneration of a gastric ulcer, and intractability to medical management. The first four may represent compelling indications for operation whereas the last is usually a relative indication. With regard to the last, the patient may have faithfully tried a conservative regimen without adequate relief from ulcer symptoms. Or, his economic status or his personality make-up may be such that for various reasons medical therapy is not successful.

Hemorrhage

Duodenal ulcers which bleed are usually located on the postero-medial surface, for it is here that the arterial supply enters the duodenum. The patient may exhibit both melena and hematemesis, but those who exhibit hematemesis are apt to have a more serious prognosis than those who have only melena. Medical management with sedation, transfusion as indicated, banthine, and frequent feedings will be successful in the vast majority of patients; in fact, there will be little difference in the mortality of 100 consecutive cases treated by conservative measures alone as compared with 100 consecutive cases treated by gastric resection. However, the nub of this problem lies in the few patients whose bleeding will not cease without surgical intervention. In this group of patients, who will be lost on medical management alone, the physician and the surgeon must work together closely as a team—the surgeon being willing to give medical therapy a reasonable trial and the internist being ready to recommend surgery before repeated periods of shock have rendered the operative risk almost unacceptable.

Liver Anoxia In Gastroduodenal Bleeding. Of much interest are recent studies which indicate that hemorrhage from the gastroduodenal artery lowers the pressure in the hepatic artery far more than in the femoral artery. Thus, there may be selective hepatic anoxia in ulcer hemorrhage, leading to a more rapid deterioration in these individuals than would be the case in, say, femoral hemorrhage.

When to Operate for Bleeding. While each case of bleeding ulcer must be treated on its own merits, we prefer to allow at least two episodes of bleeding before recommending surgery in a patient below fifty. In patients above fifty we feel that gastric surgery should be recommended as soon as the individual has recovered from the first episode of bleeding. Of course, the patient may decline surgery, but it is the physician's responsibility to recommend what he would have done upon a member of his own family—giving the reasons. The patient then makes his own decision. Of course, if bleeding will not cease on conservative therapy operation must be insisted upon.

Perforation

It is usually possible to elicit a positive history in patients who are admitted with clinical findings suggesting perforated ulcer. If there is appreciable air under the diaphragm the diagnosis is extremely likely, for the small bowel contains little gas and the colon is rarely perforated in the absence of obstruction or obvious trauma.

We believe a perforated ulcer should be closed surgically. Admittedly, there are now numerous reports in the literature attesting the success of conservative therapy (nasogastric suction, antibiotics, and intravenous fluids) in this condition. However, we recently treated conservatively a patient otherwise critically ill, who developed his perforation while in the hospital; at autopsy there was a perforation in the anterior wall of the duodenum (the commonest site) and another in the posterior wall of the stomach, and neither exhibited the slightest evidence of healing.

Late Results in Perforated Ulcer Patients. Stabins (Surgery) found that major sequelae developed in 65.1 per cent of 167 cases of perforated ulcer that were followed, and definitive surgery was later required in 36.5 per cent. Schmitz and his associates (Ann. Surg.) found perforation of a gastric ulcer far more serious than perforation of a duodenal ulcer (surgical mortality 16.6 per cent and 2.2 per cent, respectively). Conservative therapy was not considered satisfactory.

Obstruction

Obstruction due to a pyloric or duodenal ulcer may result from chronic scarring with little residual inflammation or it may have an element of both. If the latter, then a few days of conservative management with nasogastric suction may allow the edema to subside and the lumen of the pyloro-duodenal canal, though precarious, will be restored. Nevertheless, obstruction of significant degree will usually require surgical correction eventually. If the patient has a low gastric acidity —as he may, with a "burnt-out" ulcer—simple gastrojejunostomy will suffice; if the gastric acidity is high (and pyloric obstruction may increase gastric acid secretion) then some procedure to diminish acid production will be required.

Malignant Gastric Ulcer

It is still a debated question as to whether or not a malignant gastric ulcer was carcinomatous from the beginning or became so in a previously benign ulcer. We believe both circumstances may obtain. In any event, the gastric ulcer which does not disappear on one month of medical therapy should be resected.

WHAT OPERATION SHOULD BE PERFORMED FOR DUODENAL ULCER?

For practical purposes, the operations presently used are chiefly the Billroth I gastric resection (removal of the lower one-half to two-thirds of the stomach with reanastomosis to the divided duodenum), the Billroth II (resection of the lower 70 per cent of the stomach, closure of the duodenal stump, and anastomosis of remaining stomach to a loop of jejunum) and vagotomy-gastrojejunostomy.

Billroth I. This operation (Billroth, 1881) has recently been revived, after years of being considered less satisfactory than the Billroth II (1883). It requires less operating time, the mortality is lower, and patients maintain their weight better than with the Billroth II. It has been shown experimentally and clinically that fat and nitrogen losses in the feces are less when the food passes through the duodenum in digestion (Billroth I) than when it does not enter the duodenum but passes directly from the gastric remnant into the jejunum (Billroth II). The Billroth I is applicable for virtually all benign gastric ulcers and for most duodenal ulcers. The limiting factor in some duodenal ulcers is the surrounding inflammatory edema of the duodenal wall which might result in leakage should a gastro-duodenal anastomosis be performed.

Billroth II. In view of the apparent advantages of the Billroth I operation, which is being increasingly used, one might wonder why the Billroth II remains at this writing the standard and most commonly performed type of gastric resection for peptic ulcer. The reason is that, following the disillusionment of most surgeons with the simple gastroenterostomy, the Billroth II proved to be a procedure which has stood the test of time as a means of controlling the ulcer diathesis in most candidates for surgery. It will not be replaced until another procedure has proved equally satisfactory. A definite disadvantage of the Billroth II, however, is that up to 40 per cent of patients subjected to this procedure either lose weight or fail to regain weight lost preoperatively.

Vagotomy-gastroenterostomy. Dragstedt, Grimson, and others consider this the operation of choice in peptic ulcer, and their view receives considerable support from statistics. Unquestionably the operative mortality is lower than with either the Billroth I or the Billroth II, and patients having vagotomy-gastroenterostomy maintain body weight far better than those having the Billroth II and compare favorably in this respect with those having the Billroth I. Yet, again, this operation has yet to gain wide acceptance. Most surgeons agree that vagotomy is the procedure of choice for recurrent ulceration following previous gastric resection. The incidence of the dumping syndrome and the numerous variants thereof

(concluded on page 86)

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

GP'S APPOINTED TO FACULTY

The University of Mississippi School of Medicine announced the appointment of the following general practitioners as clinical instructors in preventive medicine (general practice): Dr. A. V. Beacham, Magnolia; Dr. James G. Blaine, Hazlehurst; Dr. Moncure Dabney, Crystal Springs; Dr. James R. Cavett, Jr., Jackson; Dr. O. G. Eubanks, Crystal Springs; Dr. Robert W. Crowell, Jackson; Dr. John B. Howell, Jr., Canton; Dr. William E. Lotterhos, Jackson; Dr. Robert B. Ireland, Clinton; Dr. W. Johnson Witt, Jackson; Dr. Frank C. Massengill, Brookhaven; Dr. R. J. Moorhead, Yazoo City; Dr. E. E. Robinson, Jr., Meridian; and Dr. Guy T. Vise, Meridian.

All of these men are academy members, and we are proud of them for the honor which they reflect on the academy. They will work under the direction of Dr. Thomas J. Brooks, Jr., professor and chairman of the Department of Preventive Medicine, and Dr. Louis F. Rittelmeyer, associate professor and director of the Section on General Practice.

The officers and directors of the Mississippi Academy of General Practice have had the privilege of working closely with the Medical School administration for the past year and a half. We feel that the school needs and deserves the full support of the family doctors of Mississippi.

GETTING ACQUAINTED

This is the second installment of the roster of MAGP members. (District I members were listed last month.)

DISTRICT II

Dr. Max L. Golden, Laurel, Director; Dr. C. P. Crenshaw, Collins; Dr. Weston E. Folse, Collins; Dr. H. C. Ethridge, Bassfield; Dr. Ernest D. Holder, Prentiss; Dr. James D. Hutchins, Newhebron; Dr. D. M. McLean, Laurel; Dr. W. H. Siegrest, Ellisville; Dr. A. T. Tatum, Petal; Dr. Kenneth D. Terrell, Prentiss; Dr. A. M. McBryde, Sumrall; Dr. William E. Moak, Richton; Dr. Nelson O. Tyrone, Prentiss; Dr. Lee H. Trapp, Monticello; Dr. Willis Walker, Jr., Hattiesburg.

PRACTICE OVERHEAD INSURANCE

With applications being filed in mounting volume, only 4,000 more are now required to enable the insuring company for the Academy's new Practice Overhead Insurance Program to waive its usual underwriting requirements and to accept all applicants without regard to their medical histories. Certificates are now being issued only to those applicants with clear medical histories.

In its recent communications to members, the Committee on Insurance has pointed to the AAGP Practice Overhead Plan as an essential protection for the physicians of the country and has called attention to the very low premium cost which may produce monthly benefits up to $1,000 during periods of total disability. The committee particularly pointed out that premiums relative to this program are fully deductible for tax purposes as a business expense, thereby reducing the cost of coverage to a minimal figure.

In urging participation in the new program, we suggest that immediate enrollment will not only promote your own welfare, but may very well insure the security of fellow members.

Inquiries concerning the Practice Overhead Plan may be directed to AAGP Group Plans, Inc., 3615 Olive Street, St. Louis 8, Missouri.

GRADUATE TRAINING AWARD

Mead Johnson and Company will award ten $1,000 scholarships to residents in general practice again next year. Anyone who plans to enter an approved general practice residency next July is eligible for one of these awards. If any Academy member knows of an intern or service man who would like to apply for a scholarship, tell him or her to write:

Committee on Mead Johnson Award for
Graduate Training in General Practice, care
of American Academy of General Practice,
Volker Boulevard at Brookside, Kansas City
12, Missouri.

MAGP ASSEMBLY

The complete program for the annual assembly will be sent to you shortly. An outstanding group of speakers has been selected for the occasion. These include: Dr. James S. Hughes, professor of pediatrics, and Dr. P. J. Sparer, assistant professor of psychiatry, University of Tennessee; Dr. Max S. Sadove, professor of surgery (anesthesiology), University of Illinois. Dr. William Sproul, De Moines, Iowa, vice-president of the AAGP, will be the banquet speaker.

Make plans now to attend, September 19 and 20, Hotel Heidelberg in Jackson.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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§

TRAVELING SAFELY

The killing of our people by accidental death to the tune of 100,000 each year is the greatest challenge left to the medical profession and to the citizenry of our nation. The prevention of accidents is a big problem and a most complicated one. Accidental deaths take more years from our people annually than does heart disease. The average age for heart disease is 68 years, for accidental deaths 46.

All the answers are not in for the accidental death problem. Crowded and crooked roads have been severely condemned, but the straight roads with full view ahead seem to have more serious accidents. The speeding car has been a menace to human life, but now it is said that the slow car constitutes a hazard. The defects of the car, poor brakes, poor lights, bad casings, have paid for many human lives. But the cars have been made much safer, even a safety rim will come to the rescue when the blowout comes by helping to hold the car in the road. The reduction of blowouts has been a aid also. The automobile light dimmer is indispensable as it is a major safety gadget. Statistics from the Korean War, reported the Ford Motor Company: Combat put 8,700 people in the hospital, one-half of whom returned to duty in 24 hours. During the same period 8,486 Navy personnel went to the hospital due to automobile accidents and the average stay was 46 days.

According to the number of miles traveled, the death rate in automobiles is not on the increase now. This is true perhaps for travel by air. A new approach is now underway to reduce both automobile accidents and plane crashes as well. In automobile accidents, the injury occurs in ten per cent of the cases after the passenger leaves the car. Seventy-seven per cent of airplane injuries are of the face and head. The airplane seat has always been equipped with a belt. Many automobiles are now provided with this equipment. And in addition to the belt, the shoulder strap is being found very useful. Dr. D. H. Anthony of Memphis is doing a lot of research on the value of the safety belt and the shoulder strap. We thank him for material on this study. We hope he will contribute an article on this feature of the accident prevention before long.

Accidental deaths and injuries constitute in reality our biggest problem in medicine just at this time. It will take the cooperation of doctors, hospitals, nurses, road patrol, in fact every citizen to solve it. Helpful improvements can be made inside cars yet. Safety straps can help, but the main source for prevention has not been brought to the place of importance that it should be: Road atmosphere must be improved, the attitude and the spirit of the driver is of the very greatest importance. Someone has said that you should always give the other fellow half of the road then see which half he is going to take. Road courtesy would help much in addition to efficient driving. Cars are here to stay and so are airplanes. The automobile must be made as safe as possible inside and out for the occupant, then the occupant must be made as safe as possible inside. We have learned to pack breakable merchandise in a mighty safe way; we must learn to pack passengers in a car or plane in a safe manner. The call to traveling safety comes to every citizen.

HOSPITAL FOR CRIPPLED ADULTS

Rotarians follow with interest reports about the Hospital for Crippled Adults in Memphis. At the annual meeting, July 22, Thomas E. Lane of Oak Ridge presided as president and Dr. L. T. Lawrence of Hope, Arkansas, was elected incoming president. Erst Long of Ripley was elected first vice-president, while Drs. Ben Saltzman of Mountain Home, Ark., and D. B. Aycock of Jonesboro, brother to Dr. J. W. Aycock, of Calhoun City, were also elected vice-presidents. This hospital is owned by about 300 Rotary clubs of the tri-states. About 140 members were present at the meeting.

This hospital furnishes free surgery and treatment for injured cases, figures showing that 1,319 were examined during the last twelve months. The average cost per day per person is $8.45; the average stay in the hospital is 15 days. The operating cost for the year was $110,000.

The hospital board recommended $50,000 for repairs the coming year. Twenty-two thousand, three hundred dollars of this will be paid by the Ford Foundation.

The visitors are impressed by a clean and well-kept institution, by the fine spirit of the personnel, and the cheerful attitude of the patients. Summing it up, the hospital atmosphere at this institution is simply wonderful. We want to offer our cordial congratulations to Supt. Truman Lewis and express our appreciation for the fine work he is doing for the unfortunate of the three states.

DAY HONORS DR. EVANS

Local History Preservation Day honoring Dr. W. A. Evans will be held in Aberdeen on August 6, 1956, at the Evans Memorial Library from 4 to 7 P.M. This occasion should be well attended. Dr. Evans was born August 5, 1865, and died November 8, 1948. He claimed Aberdeen as his home, but he was really a citizen of the world. His "How to Keep Well" column was read throughout the nation. It was of untold value. He rendered great service as health commissioner of Chicago. He set up the first pathological laboratory in the city. He served the last months of his life as the active promoter of the Fifty-Year Club in our state, which brought him great joy. We should be very proud of his work and of his recognition and we should love his memory for the service he rendered. Surely it is time to place his name in the Hall of Fame at our state capital. We so often think of the quartet: Drs. W. A. Evans, G. S. Bryan, Seale Harris and Rudolph Matas. Their names will live with the immortals in medicine in the South.

DR. D. W. JONES

In the passing of Dr. D. W. Jones of Jackson the State Medical Association lost a special member as did the Fifty-Year Club. He was a native of Claiborne County and later practiced in Brookhaven. For many years he has been located in Jackson.

Dr. Jones did general practice, did it well. He served as president of the State Medical Association, as a member of the Council, and on the Council of the Southern Medical Association, being at the time of his death the oldest man from the standpoint of service who had been appointed on the Council of the Southern.

He was active, able, and trusted in organized medicine. He was kind, very loyal to his friends, possessed medical integrity and was always willing to practice the medical ethics he preached.

Mrs. Jones preceded Dr. Jones in death by one week.

SMA GOLDEN ANNIVERSARY

The Southern Medical Association will celebrate its Golden Anniversary with a special program at the Read House, Chattanooga, Tennessee, Tuesday evening and Wednesday forenoon, October 2-3. This will be a historical and inspirational meeting and will not conflict with the regular annual scientific session at Washington, November 12-15.

A group of physicians from Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee met at the Read House in Chattanooga on October 2-3, 1906, and organized the Southern Medical Association with "the exclusive purpose of developing and fostering scientific medicine." Several years later the physicians who were members of the state and county medical societies in Arkansas, District of Columbia, Kentucky, Maryland, Missouri, North Carolina, Oklahoma, South Carolina, Texas, Virginia and West Virginia were made eligible to membership.

The Golden Anniversary Celebration will begin with a dinner meeting at the Read House, Chattanooga, on Tuesday evening, October 2. A feature of that program will be an address by Dr. R. L. Sanders, Memphis, immediate past-president, on "Fifty Years of Medicine in the South." Dr. Sanders graduated in medicine at Nashville in 1906, his fifty years of practice running concurrently with the fifty years of the Southern Medical Association. Dr. Dwight H. Murray, Napa, California, president of the American Medical Association, will represent the AMA at the celebration. A feature of the Wednesday, October 3 morning session will be the unveiling of a plaque to be placed in the Read House.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.

Applications for certification for the 1957 Part I examinations are now being accepted. Candidates making new application or requesting the reopening of an application must do so before October 1, 1956.

Current bulletins are now available and may be obtained by writing to: Robert L. Faulkner, M.D., Secretary, American Board of Obstetrics and Gynecology, 2105 Adelbert Road, Cleveland 6, Ohio.

ANNOUNCEMENTS

Joe M. Capps, M.D., announces the opening of his office at 620 Medical Arts Building, 1211 Twenty-First Avenue, South, Nashville, Tennessee, for the practice of neurological surgery.

Walter Bourland, M.D., announces his association with P. K. Thomas, M.D., for the practice of obstetrics and gynecology at 106 Thomas Building, Tupelo, Miss.

Robert N. Sadler, M.D., announces the opening of his office at 620 Medical Arts Building, 1211 Twenty-First Avenue, South, Nashville, Tennessee, for the practice of general and thoracic surgery.

THRIVING GENERAL PRACTICE FOR SALE: Rich agricultural town of five thousand, 50 miles from Memphis. Hill-Burton hospital. Air-conditioned office available at low rent. Will sell for one-half inventory cost. Specializing.

Dr. C. W. Silverblatt,
Osceola, Ark.

Deaths

DR. MARTINOLICH

Final rites for Dr. Betty Martinolich, 29, a native of Jackson and resident of Byhalia, were held at mass from St. Peter's Catholic Church at 11:30 Monday morning. Interment was in Cedarlawn cemetery.

Dr. Martinolich died suddenly at her home in Byhalia Saturday. Formerly a resident of Brookhaven, she and her husband, Dr. Andrew K. Martinolich, came to Byhalia about a year and a half ago. She was a graduate of the University of Tennessee, Memphis.

Surviving members of her family are: her husband, three sons, Kenneth Martinolich, John Martinolich and Mark Martinolich, all of Byhalia.

DR. HENRY BUTLER

Funeral services were conducted at Liberty Methodist Church Friday at 4:30 p.m. for Dr. Henry Anderson Butler, 58, who was found dead in his office Wednesday afternoon.

Dr. Butler was reared in Liberty, and owned Butler Memorial Hospital. He was a steward in the Methodist Church and a Mason.

He is survived by his wife, Mrs. Ione Byrd Butler; two daughters, Misses Ella Lou and Judy Butler, all of Liberty; one sister, Mrs. Fred Schleet of Natchez; two brothers, Dr. Harrison Butler of Fayetteville, Ark., and Dr. Edward Butler of Natchez; a half-brother, student in the Ole Miss Medical School, and his step-mother, Mrs. Elsie Butler of Hattiesburg.

DR. CUMMINGS H. McCALL

A prominent Gulfport physician, Dr. Cummings H. McCall, 58, shot and killed himself in his office Monday.

Dr. McCall died in Memorial Hospital of a head wound shortly after the shooting. Police said they could find no motive for the suicide.

He was president of the Mississippi State Medical Association in 1954-55 and was currently serving as chief of staff of the City-County Hospital and president of the Gulf Coast Clinical Society.

Mrs. Ruby Smith, Dr. McCall's secretary, and a nurse, Mrs. Irene Sumrall, said they heard a shot in the doctor's private office and found him lying on the floor with a pistol by his side.

(SURGERY—continued from page 82)

is approximately the same for the Billroth I, Billroth II, and vagotomy-gastroenterostomy.

Various modifications of these and other operations designed either to lower the acidity that has caused the ulcer or to correct a complication of the ulcer are constantly being examined. One particularly attractive procedure is combined Billroth I and vagotomy. This permits an attack upon both the gastric and the cephalic phases of gastric secretion, while preserving the advantages of duodenal digestion and reducing the amount of stomach that must be resected.

In summary, peptic ulceration *per se* is a medical disease. Its complications frequently represent surgical disease. Vigorous conservative therapy will result in satisfactory control of most ulcers. Before surgery is resorted to, the indications should be crystal clear.

The Urine*

WILLIAM M. COPPRIDGE, M.D.†
Durham, N. C.

When the subject of this discourse was presented to your committee I am sure it was received with some trepidation. This is certainly understandable. When one elects to speak on such a broad subject those who are responsible for his appearance have ample reason to doubt its appropriateness and possible practical value.

Let me hasten to state the material will be condensed and discussed under the following three divisions: historical considerations, the chemistry of the urine as related to science and industry, and finally the expression of some thoughts on our present day practices in urinalysis.

Homer Smith recently writing upon this same subject states, ". . . . One may add that man is also an ingenious machine for unraveling the infinite artfulness of himself, and it will come as no surprise when I assert that the study of urine has contributed as much to this self-analysis as has the study of any other feature of his body." It was not until he abandoned the forest for the cave that man began to urinate into a pot and hence had the opportunity to discover that wine and water do in fact come to much the same end. Only those persons on whom the Cromwellian Period imposed the stricture of Puritanism have hidden the urinal pot under the bed; throughout most of history and for most living peoples urine has been and remains a respectable and sometimes valuable commodity.

EARLY HISTORY

The history of urinalysis constitutes a long and interesting chapter in the records of the biomedical sciences. Herodotus wrote of uroscopy as practiced by the Egyptians as early as 1500 B.C. Hippocrates in 400 B.C. produced a book devoted to the gross description of the urine in such diseases as stone, suppurative processes, tuberculosis and possibly also malignant diseases. Ancient Hindu writings record the observation that sweet ("honey") urine is an evidence of serious disease, in that it became recognized that those who were trailed by black ants were marked for early death. Thus this association of sweet urine with diabetes constitutes one of the very earliest recorded medical observations. It has been stated that there was an amusing Egyptian superstition regarding the determination of virginity that concerned the sprouting of peas when left in urine—the non-virgin urine would not germinate the peas while that of the virgin would produce germination—a most accommodating test, when the readiness with which peas germinate under almost any condition is considered.

For obvious reasons, for many centuries, inspection of the urine was the only method of examination. This art of uroscopy (if it may be called an art) came to be widely practiced and its study reveals one of the most interesting and entertaining chapters of medical history. The practice reached its height in the medieval period and the early Renaissance. So-called "water casting" was so much in favor and popularity that the urinal became the emblem of medical practice and specimens were carried in a characteristic flask, sometimes graduated, and placed in an osier basket with lid and handle somewhat resembling a champagne basket of today. They were widely depicted in the paintings of the Dutch and German masters of that day. The art was taught in the universities as late as the sixteenth century and recognized as an honorable occupation. Unfortunately there was much mysticism and superstition in vogue in that period and the practice of uroscopy gradually fell into the hands of unscrupulous practitioners. Their numbers increased until the procedure came to be known as uromancy. These charlatans traveled from place to place reaping a harvest by their bold prophecies. This was during the time of the popularity of the barber surgeons and quite often the uroscopist or "piss-pot prophet," as they came to be known by ethical practitioners, associated himself with a shady barber surgeon. In this combination the uroscopist became the diagnostician and prescribed the treatment after a ritualistic inspection of the urine. The barber then carried out the prescribed treatment which consisted, as the case might be, of bleeding, cupping, leeching or poulticing, in an effort to remove the particular poison from the body that had been evidenced from inspection of the urine by his brother-rogue. However, uroscopy continued to be practiced by a considerable number of honest, conscientious physicians because it was, aside from feeling the pulse or looking at the tongue, the only clinical test to which they could turn. It is evident therefore that it required many hundreds of years, in fact until the nineteenth century before the study of the urine became truly scientific.

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*Presented at the sixty-seventh annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 14-17, 1956.

†Department of Urology, Watts Hospital, Durham, North Carolina.

The Urine in Medicine and Chemistry

During these centuries the urine itself was used in the treatment of various diseases. Robert Boyle, a pioneer in chemistry in the seventeenth century, stated that the virtues of the human urine as a medicine would require for their enumeration a whole volume. In this period it was common for the ladies of France to take urine baths to beautify their skins. It has always been employed in the treatment of skin diseases, and is until this day, in certain remote areas. Such lowly and plebian customs must not always be too lightly dismissed as being ridiculous. This brings to mind a case in point though in another branch of medicine, of the old colored janitor in the medical school forty-odd years ago who stated that the best way to heal sores on the legs "is to treat them with mouldy bread poultices." I think we will have to admit that he was several decades ahead of the science of antibiotics when he said "the mouldier the bread is and the oftener you change them the better it is."

The foundation of the science of chemistry was in a very large part based upon studies of the urine. Being a weak detergent because of its urea content, and this detergent quality, becoming enhanced upon fermentation, urine has long been used as a cleansing agent in the wool industry. Upon fermentation of the urea, the ammonia that is freed has resulted in its use in many parts of the world as a fertilizer. Modern husbandry recognizes the value of estrogens in the fertilization of pasture land by the urine of pregnant heifers.

The element phosphorus was first found in evaporated urine and this was the sole source of the element for many years until in 1775, when Scheele discovered a method of preparing it from bones. Urea was discovered from study of the urine in 1773 and preparation of its nitrate salt soon followed. The nitrates so recovered have been used in gunpowder and other explosives. The urine barrels on the street corners of the cities of the Confederacy wherein the women of the South were exhorted to deposit all urine serve as an example of the extremity to which an heroic people were extended in their devotion to the lost cause. In the closing days of the war urine was the chief source of the badly needed gun powder.

The Evolution of Modern Analysis of the Urine

With the development of chemistry, the advent of the microscope and the study of the physiology and anatomy of the genito-urinary tracts, scientific study of the urine has advanced. Chronologically the more important steps may be summarized:

Von Helmont (1578-1644) first called attention to the variation in weight of urine in health and disease. He observed that a youth of 19 being ill and abstaining from drink of any kind voided a heavy urine which weighed 92 grains more than that which he passed when he was in good health. He also reported, "A maid having suffered 'The beating or passion of the heart' made a water like unto rain water and which therefore was of equal weight with rain water." These studies formed the basis of our understanding of the specific gravity of urine.

William Cruickshank who was Dr. Johnson's personal physician, showed in 1778 that the sugar in diabetic urine was not milk sugar and fifty years later it was found to be glucose and then Claude Barnard's studies on glucosuria and liver glycogen opened the way for later studies to initiate the modern era of carbohydrate metabolism. Cruickshank noted the cloudiness that came with boiling albuminous urine and he also reported on studies of ammonia in urine. Bird in 1843 emphasized the importance of microscopic study of concentrated urinary sediment.

Gradually over the closing years of the nineteenth century and early in the present century, the works of Fehling, Davy, Bence-Jones, Hopkins and later of Folin, developed the scientific quantitative study of the urine as it has been passed on to us. All of this has come in the past 60 to 70 years. The volume of contemporary research on the function of the kidneys is tremendous and bids fair to open new fields of information of vast clinical value. In 1910, Newbauer estimated the number of organic compounds that had been isolated from the urine as being over 100 up to that time. Today the number is probably double that.

Present Tendencies in Urinalysis

As our scientific knowledge has advanced in every decade and resulted in more accurate determinations of the various components of the urine in health and disease, it would seem that there has developed a tendency to disregard some of the older and simpler methods of examination. This trend has been in evidence for several years. Augustus Harris in 1935 lamented the fact that physicians were ignoring the art of uroscopy and thereby sacrificing valuable data of considerable diagnostic value. In the intervening twenty years I am sure that there has developed an even greater disposition towards carelessness in examination of the urine. Harris directed his criticism to the profession in general when he said that only those working in the field of urology recognized the value of careful inspection and minute examination of the urine. With the passage of time I am embarrassed to say that this trend towards neglect has even invaded the field of urology. On a recent visit to the urological department of a leading medical school it was observed that microscopic examinations were being made on freshly voided non-centrifuged specimens. The value of concentration of the sediment seems not to have been recognized or is entirely ignored.

In modern practice, particularly in our hospitals and clinics, the art and science of urine analysis has generally submerged to a very low standard so far as their real worth may be accepted in diagnosis. Much of the value that could be derived from careful inspection and analysis is lost due to our failure to take the necessary time to carry out the simple procedures. In many hospitals these examinations are relegated to the medical student or intern who regards urine examination as rank "skut" and a task imposed upon him which is entirely below his dignity to perform—or to a student technician—usually the junior in her group, who after a few weeks of supervision is regarded as being satisfactorily equipped to perform such a menial task. This statement is made with no intended criticism of our laboratories. The volume of work going through them is tremendous and we all know their problems of scarcity of personnel. The real fault lies with us, the clinicians, who are increasingly prone to turn over to others the performance of certain duties that could best be done by ourselves.

Value of Inspection and Study of Freshly Voided Urine

Those of us who have been long engaged in the practice of urology have come to know the value of careful gross examination of the urine. The color, odor and turbidity of various types will often give clues to early diagnosis that might be much delayed if the fresh urine is not seen. The riches we now possess in modern paraphernalia for diagnostic investigation often induce neglect of valuable time-honored means of extreme simplicity.

There are many procedures that can be quickly performed on freshly voided urine that will obviate more elaborate time-consuming and expensive examinations. Also these simple tests when carried out by the physician himself while the patient is under observation, adds to their value when compared with the results of more intricate procedures performed at a later time by technicians of unknown qualifications and whose interest, at times, may be questioned.

For example, the gross inspection of a freshly voided specimen when collected in two or more proportions may give impressions that cannot be obtained from the delayed examination of a total specimen. In cases of hematuria this is especially true. This brings to mind the case of a man complaining of bloody urine. He was hospitalized for examination because his physician was properly impressed by the seriousness of this symptom. The urine was constantly bloody. He was subjected to cystoscopy, multiple x-rays and pyelograms, aortography, repeated examinations for blood dycrasias, blood chemistry, renal function tests, etc. After two weeks it was observed that in voiding in three glasses the blood appeared in the first specimen and the last two were clear. This, of course, fixed the site of origin of the blood in the urethra. Urethroscopy showed a small papilloma in the posterior urethra and fulguration, which required a five-minute anesthesia, produced the desired result.

It should be remembered that bile may appear in the urine several days before any evidence of jaundice is observed. One's attention may be turned toward consideration of biliary disease sometimes many days earlier if the urine is grossly examined. Unless specifically requested to do so the technician seldom makes a report in this regard.

We have been able to diagnose two cases of porphyrinuria by observing that the gross specimens were dark in color and when placed in the sunlight became much darker. This obscure disease is seldom diagnosed by any other method.

When urine is found to be cloudy the determination of the cause of the turbidity may be quite revealing. Clearing on addition of acetic acid confirms phosphaturia. The failure to clear usually denotes pyuria. The well-known "smoky urine" is seen in cases of mild hematuria. Bacilluria is recognized by the peculiar sheen of the specimen such as is seen in a culture of typhoid bacilli. Its gross recognition is important because these specimens often do not contain pus and a negative laboratory report usually results. Bacilluria denotes urinary infection and is almost always associated with chronic urinary stasis. An important lead to diagnosis may be had by observing it.

The odor of the urine has long been regarded as having clinical significance. As is well known, the earliest kidney function test depended upon the degree to which the odor of asparagus was imparted to the urine of those who had ingested this vegetable. Many older pediatricians detected acidosis in their patients by recognizing the characteristic smell imparted to the urine by the ketone substances. There is no surer way to determine the presence of urinary tract infection with certain gram-negative bacilli than to detect the mild putrifactive odor they impart. The choice of antibiotics in such cases is thus indicated with about as much accuracy in the average case as that to be obtained from our time-consuming and more expensive sensitization studies at a much later time.

In addition to the observation of the urine for color, turbidity and odor there are several additional simple tests that can be done immediately after the specimen is voided from which valuable information may be obtained. A quickly stained smear of the sediment when examined microscopically will confirm or disprove previously formed conclusions of whether or not the infection is bacillary or coccal.

The accurate determination of reaction of the urine is often desirable and may be quite informative. The degree of acidity is important in such diseases as gout or of uric acid calculus disease in which the most acid urines are encountered. The exact degree of acidity can only be determined on a freshly voided specimen so our usual practice of ordering a specimen sent to the laboratory for pH determination is most often valueless.

In fact, all of the simple observations mentioned heretofore must be made on urine immediately after voiding. The changes induced by temperature, light, bacterial fermentation, chemical action with dissolution of casts and blood cells all tend to contribute to error when the specimen is allowed to become hours old before examination. Delayed cultures of the urine even if it is collected with minute aseptic care is of little value because of the tendency of certain organisms to outgrow or over-grow others that may be the chief offenders in the given infection.

It is with some diffidence that I mention the importance of such a well-known and widely-accepted practice as that of securing catheterized specimens from the female. It may seem quite superfluous to most of you. However, we have women referred to us quite regularly who have been treated for long periods by capable practitioners, for "pus in the urine" in whom the catheterized urine is found quite normal and an active vaginal discharge is present.

In summary, I think it is fair to say that in the careful examination of the urine one may obtain more information of clinical value in the average sick patient than by any other of our many diagnostic procedures. Many centuries have been involved in its evolution. I would like to close with a quotation from a statement made by Fourcray in 1801 and with which Homer Smith closed his paper:

"The urine of man is one of the animal matters that have been the most examined by chemists, and of which the examination has at the same time furnished the most singular discoveries to chemistry and the most useful application to physiology, as well as the art of healing. This liquid, which commonly inspires men only with contempt and disgust, which is generally ranged amongst vile and repulsive matters, has become, in the hands of chemists, a source of important discoveries, and is an object in the history of which we find the most singular disparity between the ideas which are generally formed of it in the world and the valuable notion which the study of it affords to the physiologist, the physician, and the philosopher."

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Look not mournfully in the past. It comes not back again. Wisely improve the present. It is thine. Go forth to meet the shadomy future, without fear, and with a manly heart—Longfellow

Let us be of good cheer, remembering that the misfortunes hardest to bear are those that never come—Lowell

Connective Tissue*

D. MURRAY ANGEVINE, M.D.†
Professor of Pathology
Chairman of the Department

Connective tissue constitutes by far the greatest single component of the human body. One may regard it as a continuous matrix that varies in consistency from pliable Wharton's jelly to hard bone in which lies an interlacing fabric of fibers. It might not be incorrect to consider the body, if one excludes certain viscera, as being constructed of various kinds of connective tissue covered externally and lined internally by epithelium.

Although my remarks will generally apply to all types of connective tissue they will be directed more particularly to areolar connective tissue which is essentially composed of fibrocytes, collagen and elastic tissue fibrils. The intervening space which contains mucopolysaccharides of different kinds has been termed the ground substance. When the latter is abundant the tissue is soft and may be referred to as myxomatous. On the other hand, when the collagen is abundant the tissues are firm and compact as in a fibroid of the uterus.

In addition there are also scattered mononuclear cells as well as the highly specialized tissue mast cells with basophilic granules.

It is not my purpose to go into great detail concerning any of these structures, but rather to select and elaborate upon certain features of current interest that may help lay a foundation for an understanding of the pathological physiology of this unique and fascinating tissue.

During the past decade there has been unusual interest in connective tissues both in health and disease. This has been associated with a great interest in investigation largely in the area of rheumatic diseases and has resulted in a sizable volume of literature to which only a few pertinent references will be given[1],[2],[3],[4].

Although a knowledge of this system is probably essential in every field of medicine, there are certain facets in the specialty of Obstetrics and Gynecology that would seem to necessitate a comprehension of this subject of the highest order especially in relation to the hormonal control of connective tissue. I will give a few examples.

The widespread alterations that occur during menstruation in the form of swelling of the subcutaneous connective tissues and the breast. The alterations that occur during pregnancy the classic example of which is the softening and stretching of the pubic ligament. The extensibility of the abdominal wall and the enlargement of the uterus would be impossible were it not for the plasticity and elasticity of connective tissue. You are also deeply concerned in your daily practice with problems of wound healing, electrolyte balance, the treatment of infections and the effects of irradiation on tissues. These few illustrations should suffice to make my point.

Virchow was one of the first to recognize the significance of connective tissue and to realize the importance of ground substance. Later another pathologist, Rössle, described "fibrinoid degeneration" in rheumatic fever and believed it represented degenerated collagen. He attached considerable significance to this observation and attributed considerable specificity to it, thus laying the morphological foundation for a group of diseases known as "Collagen Diseases" which we now prefer to designate as diseases of connective tissue.

The greatest single stimulus to extensive exploration of this field was the discovery that pituitary adrenocorticotrophic hormone (ACTH) and cortisone have a profound effect on these tissues. A few general comments may be in order at this juncture. For the past 100 years the interest of scientists has been focused upon the structure, function and chemical composition of cells rather than upon their surroundings so that modern interest in connective tissue has been relatively recent. Klemperer[3] has described it as "a field of active research and clinical misconceptions." He has also aptly stated that "the impatience of clinical investigators and a peculiar worship of diagnostic terms have led to an exaggerated popularity of diagnosis of collagen disease and that it is therefore becoming a catch-all term for maladies with puzzling clinical and anatomical findings. It is not a term applicable to diagnosis and certainly does not define the morbid processes of the diseases grouped together."

In considering metabolic processes there often is a tendency to ignore the metabolic function of connective tissue and think only in terms of intracellular metabolism. It should be emphasized that all metabolic processes are transmitted through and therefore modified by the connective tissue so that it has been very appropriately termed "the

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biological moderator of cellular energy." A good working conception of this tissue is to consider it as a system of intercommunicating protein-like fibrils with an immense surface. Such a conception can be well illustrated as follows: If one injects an animal with a dye such as trypan blue, the animal is colored blue in a matter of minutes, the dye is not in cells but is bound to connective tissue fibers over the entire body and is not absorbed into cells until 24 hours or more have elapsed. A somewhat similar observation has been made in connection with Wharton's jelly and it has been suggested by Barcroft that it might serve as a non-vascular conducting path of metabolites from the placenta to the embryo.

The material in the interfibrillar space, known as ground substance, is largely composed of acid mucopolysaccharides. The amount of albumin in this space, which can be assumed to correspond roughly with the extracellular space, represents twice the amount contained with the intravascular space. Ground substance is hydrophilic, retains water and absorbs electrolytes. It takes up water by hydration as does gelatin rather than by osmosis. From these remarks it should be evident that one can scarcely overemphasize the significant role this substance plays in the maintenance of electrolyte balance.

The complexity of the problems that require definite answers should be self-evident and final answers will come only as a result of concerted and intensive investigation by several disciplines, including cytology, physiological and physical chemistry, pathology and endocrinology. The knowledge obtained must then be subjected to critical analysis and finally blended in the light of both normal and abnormal physiology so that the clinician may eventually utilize it in an intelligent manner in the treatment of disease. It should also be apparent that at this stage of our knowledge no one person can speak with authority on all phases of this most intricate subject.

Now let us turn to the relationship of the endocrine system to the control of connective tissues by indicating the effect of some of the hormones. As already indicated the discovery of the remarkable effect of ACTH and cortisone on certain connective tissue disorders initiated extensive investigations into the mechanisms involved. ACTH probably exerts no direct effect on connective tissue but acts indirectly by mobilizing certain hormones from the adrenal cortex. Cortisone is said to act upon all components of connective tissue, the cells, ground substance and fibrils. As might be expected many of the reported observations are controversial and frequently satisfactory explanations are lacking for the observed phenomenon. When prolonged application of cortisone to the skin of rats was shown to produce a reduction in the number of fibroblasts[5], it was logical that investigators would turn to a well-documented process such as wound healing to study hormonal effects.

Most of the experimental work in this connection has been done with either the purified substance cortisone or with ACTH. As far as wound healing is concerned the effect of these two substances appear to be very similar. The administration of cortisone in large doses delays the healing of incised wounds in the rabbit, rat and mouse. Although it appears to have a similar effect in man under certain circumstances observations are somewhat contradictory. Because cortisone depresses both the formation of new vessels and the proliferation of fibroblasts it is possible that the latter effect may be secondary to the effect of cortisone on new vessel formation. It is also relevant that even high concentrations of cortisone do not inhibit the proliferation of fibroblasts in vitro. As a result of diminished fibroblastic activity the amount of collagen laid down in the wound is deficient so that there is a decrease in the tensile strength of such wounds[6].

Efforts have also been made to prevent or reduce the incidence of peritoneal adhesions in dogs by the administration of cortisone. Such large doses were necessary to accomplish this that wound healing was delayed, therefore eliminating it from the field of practical importance. It has also been demonstrated that both ACTH and cortisone cause a reduction in number and a degranulation of the connective tissue mast cells[1]. It seems logical to assume on present evidence that any effects upon the ground substance and fibrils are probably a reflection of their effects upon the fibroblasts. The views expressed by Albright in 1942 still remain applicable, namely the action of cortisone is anti-anabolic rather than catabolic. Cortisone in large doses causes an increase of hydroxyproline in the urine, a failure to incorporate sulphate into chondroitin sulphate and a failure of proliferation of fibroblasts, when fibroblasts are present ground substance and collagen are usually laid down normally.

Let us now take a brief look at some other hormones. Growth hormone (somatotrophin) as might be expected increases fibroblast proliferation and the formation of collagen fibrils[7]. The thyroid stimulating hormone (TSH) of the hypophysis exerts a direct effect upon the connective tissue. It will induce exophthalmos in the guinea pig by effecting the retrobulbar tissues. There is a violent swelling of the extra ocular muscles and a conspicuous increase in the volume of connective tissue caused by an increase in the mucopolysaccharides. The role of the sex hormones is of great importance and is well exemplified by the well-known influence of estrogen upon the sex skin of the monkey. The material that accumulates in the skin has been identified as hyaluronic acid[8] and it has been demonstrated that the inoculation of hyaluronidase into the sex skin will bring about a softening of this tissue. A somewhat analogous situation is the edema that occurs during the menstrual cycle at which time there is an increase in the excretion of estrogens, an increase in weight and a decrease in urinary output. It might also be pointed out that estrogen will induce proliferation and calcification of bone tissue and may prematurely age it. Male sex hormone has the opposite effect.

The hormone of pregnancy, relaxin will bring about proliferation of the connective tissue in the symphysis pubis during pregnancy so that separation and relaxation occurs. The tissue stains more intensely with the McManus-Hotchkiss method and the fibrillar elements are looser with more fluid consistency.

The effect of the pure male sex hormone testosterone in stimulating growth of the cock's comb is apparently due to a direct effect and is due to proliferation of fibrous connective tissue, the fibroblasts being larger and more numerous than in controls. The structure is looser and less compact with an increase of mucopolysaccharides largely hyaluronic acid.

Such a talk would be incomplete without some reference to the hormonal control of connective tissue in relation to the localization or spread of infection. This problem has been studied extensively by Duran-Reynols[9], Sprunt[10] and Lurie[11]. The latter has observed that the severity of tuberculosis is increased in experimental animals given gonadotrophic hormones and decreased with estrogens. He believes that estrogenic hormones increase the viscosity of connective tissue so that it is easier to localize the tubercle bacilli. The gonadotrophic hormones decrease the viscosity thereby contributing to spread of the organisms. Lurie also suggests on the basis of his work that one reason young women are so susceptible to tuberculosis is because the organisms are localized during part of the menstrual cycle and spread during the other part. To what extent this experimental work can be applied to human disease is uncertain.

Another area where more information is needed is the role of connective tissue in neoplasia. In addition to the usual fibromata there are lesions classified as tumor but which are probably associated in some manner, as yet not clearly understood, with sex hormones. These are the leiomyomata composed of smooth muscle and the desmoid tumors usually associated with pregnancy. Xanthofibroma of the ovary can probably also be included. Gersh and Catchpole[12] have ascribed the regulation of the physical state of the ground substance of the stroma of transplantable sarcomata to the activities of fibroblasts. It has also been the opinion of some investigators that fibroblastic proliferation induced in neighboring connective tissue by a carcinoma may be an indication of resistance or an immune response on the part of the host to the epithelial neoplasm: Another problem to be settled!

Somewhat earlier I referred to wound healing and repair. There are various theories to explain the sequence of events in this process. Some evidence exists to indicate that injured tissue composed of dead or dying cells may liberate a growth-stimulating substance that will promote proliferation of cells. Another theory is that there is normally a growth inhibiting factor in tissue that is destroyed with the injury of cells permitting an unhampered proliferation of cells as in embryonic life. This matter of stimulating and growth inhibiting factors is of profound biologic signifcance and is still unsolved. I am of the opinion that a thorough understanding of the problem might well reveal clues as to some of the causative factors in the field of neoplasia. An extensive investigation into such a common condition as keloid formation, a non-neoplastic disturbance of reparative growth, might be rewarding.

With increasing utilization of irradiation in the treatment of malignancy a knowledge of its effect upon connective tissue is necessary, principally in relation to the problem of protecting normal tissue from damage.

Wolbach[13] was one of the first to indicate that skin carcinoma due to irradiation was essentially the result of alterations in the connective tissue, principally due to obliteration of the blood and lymph vessels. When connective tissue is irradiated the initial period of edema and inflammation results in thickening of collagen fibers and finally dense hyaline tissue. Such changes progress slowly and may become manifest years after therapy, they usually are associated with an injury of vascular structures in the tissue. It is from alterations such as these that the late complications of therapy arise, by producing necrosis of tissues, obliteration of hollow organs or pulmonary fibrosis, all irreversible changes. Such tissues are less resistant to infection so that they may result eventually in fatal complications many years after irradiation.

Throughout my talk I have indicated certain areas in need of investigation. The solution of many of these problems will come as a natural development by the application of known techniques to this particular problem. As newer techniques develop they will open further opportunities.

To illustrate my point I should like to describe briefly one current piece of experimental work that has given considerable insight into the connective tissue problem, namely, a study of experimental lathyrism in the rat[14].

It has been demonstrated that diets containing sweet pea (lathyrus odoratus) seeds produce alterations in the skeleton and connective tissue of the rat. The lathyrus factor has been identified chemically as B-aminopropionitrile and has been prepared synthetically. This compound will produce large exostoses in the skeleton with resulting deformity. In suckling rats fractures are produced.

Dissecting aneurysms are produced which rupture, causing death from hemorrhage. Similar lesions can be produced in utero by feeding the compound to the mother. Inguinal hernia has also been produced. By careful study of such lesions with both histochemical and chemical methods it will be possible to gain further insight into the metabolism of this tissue in relation to structural changes. As knowledge develops along these lines, and I can assure you it develops slowly because observations must be repeatedly confirmed, it becomes easier for us to interpret the wide variety of poorly understood, often overlooked and neglected lesions that are found with increasing frequency in the connective tissue.

This talk has been of a somewhat diffuse nature, however, it has been my purpose to demonstrate the importance of connective tissue by showing how it relates to many problems that are of importance not only to the investigator and the specialist but to the physician in general practice who is concerned with this problem every time he dresses a wound.

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ACADEMY OF PSYCHOSOMATIC MEDICINE

The Academy of Psychosomatic Medicine will hold its third annual meeting at the Hotel Plaza, New York City on Thursday, Friday, and Saturday, October 4, 5, and 6, 1956. Just as the first annual program was devoted to the psychosomatic aspects of drug administration, the third will be key-noted around the subject of the psychosomatic aspects of the general practice of medicine.

Each morning will be given over to invited speakers. Among others, Dr. Milton Rosenbaum of the Albert Einstein College of Medicine of Yeshiva University will discuss the doctor's relationship to the patient in psychosomatic disorders. Dr. George Train of the State University of New York will talk on pitfalls in the evaluation of psychotherapeutic results. Dr. Avery D. Weisman of Harvard Medical School, Boston, will explore the psychiatric management of duodenal ulcer.

Tortion of the Testicle and Its Appendages*

CYRUS C. JOHNSON, M.D.
Jackson, Miss.

TORTION OF THE testicle, which is in reality tortion of the spermatic cord, is not rare, some 489 cases having been reported up to 1944. It certainly may be seen infrequently in one's practice, however, and it is for this reason that I would like to bring it to your attention. Tortion of the spermatic cord shuts off the blood supply to the testicle and the epididymis resulting in infarction and followed by gangrene and atrophy unless released. Because it can occur bilaterally, the significance of such a tragedy is readily apparent.

Hamilton Bailey in his textbook, *Diseases of the Testicle,* states that tortion cannot occur in a normal testicle. In the normal scrotum it is impossible to rotate the testicle to any significant degree. There are two types of tortion of the cord:

1. Tortion occurring outside the tunica vaginalis of the testicle (extravaginal)
2. Tortion occurring inside the tunica vaginalis (intravaginal).

The extravaginal type is rare occurring in cases with a long mesorchium or produced by trauma in cryptorchism. The intravaginal type, by far the most common, may be explained on two anatomical abnormalities:

1. The absence of the scrotal ligament which attaches the lower end of the spermatic cord and epididymis to the posterior scrotal wall.
2. Complete and high investment of the testicle and epididymis by the tunica vaginalis so that the testicle hangs in the tunica vaginalis like the clapper of a bell.

Normally the posterior medial aspect of the epididymis lies outside the tunica vaginalis. In addition to the high investment of the cord, Muschat has demonstrated extention of the cremaster muscle down the cord, inclosed by the tunica vaginalis, the cremaster muscle being attached to the cord spirally, so that when the muscle contracts vigorously, it is readily understood how rotation of the cord and testicle takes place.

Tortion of the testicle can occur at any age but is more frequently seen between the ages 15 to 25 years. The precipitating cause of tortion is unknown. It may occur during sleep or may occur following straining as jumping, lifting or riding a bicycle. It has been known to occur after coitus.

Tortion of the testicle clinically may be divided into three types according to Bailey:

1. Tortion of the fully descended testicle.
2. Tortion of a maldescended testicle in the inguinal canal
3. Tortion of an intra-abdominal testicle

The onset of tortion is sudden, with severe pain in the testicle which may be agonizing enough to cause the patient to collapse. There may be associated nausea, vomiting, abdominal pains and low grade fever. The contents of the scrotum are extremely tender and because of this, palpation may be impossible. Scrotal swelling and signs of inflammation appear. The testicle usually rides higher in the scrotum than normal. If palpation is permissible, an abnormal position of the epididymis may be detected depending upon the number of rotations of the cord. The twisted convoluted cord may also be palpable. Pain and difficulty in micturition may be present. As gangrene appears in from six to twelve hours or less, depending upon the number of rotations and severity of the tortion, pain disappears and the patient's temperature which may have been normal or subnormal is slightly elevated.

Tortion of the fully descended testicle, according to Bailey, must be differentiated from:

1) strangulated hernia, 2) epididymo-orchitis, and 3) tortion of the appendages of the testicle and epididymis.

A strangulated hernia, especially when the sac is small, very tense and situated in the upper part of inguinal canal, may compress the veins of the cord producing swelling and tenderness of the testicle.

Because the scrotal skin becomes reddened and inflamed in tortion of the testicle, after the early severe symptoms have subsided, it may be mistaken for epididymo-orchitis. The absence of urethral discharge and a negative urine should rule out the latter. Prehn's sign, which is the relief of pain in the case of epididymo-orchitis by elevation of the scrotum for an hour may be helpful. Elevation of the scrotum in tortion aggravates the pain.

Tortion of the hydatid cyst of morgagni of the testicle or a cyst of the epididymis gives rise to the same symptoms but they are usually less severe. In the case of the cyst, it may be possible to palpate and localize the affected part at the upper pole of the testicle, a tender grape-like swelling being felt.

Tortion of a maldescended testicle in the inguinal canal may be indistinguishable preoperatively from a strangulated inguinal hernia.

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*Presented before the Central Medical Society, Jackson, Miss., June, 1956.

Tortion of a maldescended intra-abdominal testicle occurs, some thirteen cases having been recorded up until April 1954. Sixty-six per cent of these cases occurred on the right side and the diagnosis of acute appendicitis was considered.

Chronic or recurrent tortion of the cord does occur but rarely, usually simulating epididymitis. Within a few minutes to an hour the cord untwists itself and symptoms disappear. Cases have been reported where the individual learns to untwist the cord himself relieving the symptoms. Rolnick states that many cases of atrophy of the testicle, said to have been caused by some form of trauma. are in all probability due to tortion of the cord.

Surgery is the only safe treatment of tortion of the testicle. This should be done within the first one or two hours after symptoms appear if gangrene is to be prevented. Detortion of the cord and orchipexy are carried out if gangrene has not appeared. Orchidectomy should be done if gangrene is present. The uninvolved side should have orchipexy then or later to prevent an occurrence there.

Tortion of a testicular appendage, or the hydatid cyst of Morgagni, may be treated expectantly but it will run a rather painful course. Eventually resolution will occur. Surgical removal will promptly relieve the condition and surgical exploration certainly should be done if the diagnosis is doubtful and one may be dealing with tortion of the testicle.

The tragedy of tortion of the testicle was first brought to my attention by a twenty-year-old white man, married ten months, whose chief complaint was loss of libido of four months' duration. In 1952 he had suffered tortion of the right testicle which was operated and detortion and orchipexy done. In spite of not appearing gangrenous, atrophy of this testicle resulted. In January, 1954, tortion of the left testicle occurred and at surgery gangrene was found. The testicle was left in but when seen by me on March 18, 1955, both testicles were atrophied. The patient had gained from 190 to 225 pounds in the past eight or nine months. He had developed huge thighs and legs typical of hypogonadism. His BMR was minus 9, minus 6. He was put on depo testosterone and thyroid extract and one month later he was happily carrying out his household duties. Five months later with a little dieting he had lost thirty-five pounds and had made his college football team.

A second case of tortion of the testicle was a fifteen-year-old white boy who, on May 10, 1955, experienced sudden pain in his left testicle while riding his bcycle. The testicle became swollen and the tenderness and swelling had persisted for fifty hours when I saw him on May 12, 1955. His left testicle was swollen and tender and the left scrotum red and edematous Tenderness was more over the body of the testicle rather than the epididymis which did not seem to be enlarged or tender. There was no urethral discharge and his urine was negative. His temperature was 100° and his WBC 18,400. A diagnosis of tortion of the testicle was made and surgical exploration revealed, upon opening the tunical vaginalis, a tortion of the cord and an enlarged testicle and the whole testicle and epididymis were dark and ischemic, appearing to be infarcted. The cord was twisted three full turns and detortion was carried out by turning the cord counter clockwise. Hot packs after many minutes produced questionable improvement in the appearance of the testicle. Orchipexy was done and the patient discharged May 19, 1955, with instruction to have orchipexy on the right side done by his local physician a few weeks later. On June 6, 1955, his local physician had to do a left orchiectomy because the wound continued to drain and the gangrenous testicle exteriorized itself. On July 10, 1955, his physician did a right orchipexy. A letter from his physician on September 29, 1955, stated that the boy was playing football.

An eight-year-old white boy was seen December 23, 1954, with pain, tenderness and swelling of the left testicle of five days' duration and with no history of trauma. The left scrotum was reddened and edematous and because of tenderness adequate palpation was impossible. Urine was negative, WBC 16,700 and patient afebrile. A diagnosis of tortion testicle versus tortion hydatid cyst of Morgagni was made. Upon surgical exploration and opening the tunica vaginalis, a twisted pedicle of a hydatid cyst of Morgagni with gangrene and necrosis was found. The pedicle was clamped, divided and ligated and the cyst removed. Uneventful recovery followed and the patient was discharged December 27, 1954.

An eight-year-old white boy was seen July 22, 1955, because of sudden tenderness and swelling of the left testicle which appeared July 18, 1955, and had persisted. There was no history of trauma, and pain and tenderness were never severe, but there was an associated discomfort in the LLQ and LUQ of the abdomen. The left testicle left larger than the right but was not elevated in the scrotum. The upper area of the left scrotum showed a little redness and edema. The lower pole of the left testicle was only slightly tender but the upper pole beneath the scrotal edema was very tender. A diagnosis of tortion of the hydatid cyst of Morgagni was made and observation with complete bed rest advised. By July 26, 1955, four days later, the scrotal edema had disappeared and a hard, smooth nodules about the size of the tip of the little finger could be palpated elevated above the surface of the upper pole of the left testicle and corresponding to the position of a hydatid cyst of Morgagni. By July 29, 1955, all tenderness had disappeared but the nodule could still be palpated but was much smaller. It was felt that a diagnosis of tortion of a hydatid cyst of Morgagni with resolution having taken place was correct.

In summary: Tortion of the testicle or its appendages must be considered when testicular pain, tenderness and swelling appear without any history of real trauma and with a normal urine and no urethral discharge. If in doubt, surgical exploration should be done because all is to be gained and nothing lost. Certainly no time is to be lost if the testicle is to be saved.

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Keep a brave spirit, and never despair; hope brings your messages through the keen air—Good is victorious—God everywhere—Anonymous

The only conquests which are permanent, and leave no regrets, are our conquests over ourselves—Napoleon

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Emergencies of the Third Stage of Labor: The Diagnosis and Management*

J. E. SAFLEY, M. D.
Brookhaven, Miss.

I wish to take this opportunity to express my gratitude to Dr. Isadore Dyer, professor of obstetrics, Tulane University School of Medicine, New Orleans, Louisiana, for allowing me the use of his slides and references in the preparation of this paper.

An adequate history of any given patient's past obstetrical history, her prenatal care and a knowledge of her past general physiology is not directly associated with this subject, but one must admit that it is of no small importance in the anticipation, development, and management of emergencies of the third stage of labor. How has she withstood pregnancy? What is her cardiac status? Are there any complicating diseases?

Almost without exception the cardiac patient, the diabetic, the grand multipara, the one who has prolonged labor, an extra large baby and/or abnormal presentations will produce the majority of third stage emergencies.

The material presented in this paper is taken from observations and experiences during my residency training and four years of private practice. These observations and experiences have made me realize the seriousness of the proper management of the third stage of labor and its complications.

Definition—The third stage of labor starts as soon as the baby is delivered and ends with the delivery of the placenta. The immediate puerperium is that period beginning at the end of the third stage of labor and ending one to twenty-four hours thereafter, when the patient has recovered from the early effects of anesthesia, the threat of hemorrhage has past, and the maternal organism functions with practically normal physiology.

Complicating Factors—Hemorrhage: (Table I) Even today with our increasing number of modern hospitals which are well staffed with competent physicians, medical technicians, and blood banks, hemorrhage remains a threat to all pregnant women. It may be uterine in origin, traumatic in origin, or it may be caused by the placenta.

TABLE I
CAUSES OF THIRD STAGE COMPLICATIONS

- HEMORRHAGE
  - Uterine Origin
    - Atony
      - Prolonged labor
      - Overdistention
      - Tumors
      - Couvelaire
      - Intravenous pitocin drip
    - Rupture
    - Inversion
  - Trauma
    - Vaginal
    - Cervical
    - Concealed hematoma
  - Placenta
    - Concealed fragments (extra lobes)
    - Placenta previa
    - Premature separation (abruptio)
    - Placenta accreta
- EMBOLI
  - Amniotic fluid
  - Air
- CARDIAC DECOMPENSATION
- AFIBRINOGENEMIA

Hemorrhage has been observed to be directly attributed to prolonged labor, an over-distended uterus from a multiple pregnancy, an excessively large baby, and polyhydramnios. The overly distended uterus frequently has a loss of muscle tone, or atony. This same condition has been known to follow the use of a pitocin drip, especially one which is discontinued with the birth of the baby. Atony is also found with the use of deep and prolonged anesthesia, when multiple and/or large fibroids are present, and in abruptio placentae with extravasation of blood into the uterine wall, thus producing a couvelaire uterus. We all know that almost without exception hemorrhage will usually follow rupture of the uterus as it does in the rare cases of inversion of the uterus.

In many cases the hemorrhage may be due to a laceration of the vagina, the cervix, or both. Death of the immediate postpartal patient may occur from a concealed hematoma which has dissected retroperitoneally into the abdomen. Occasionally a laceration of the vulva, especially near the clitoris, may go undetected, the patient returned to her room, and later found to be in shock[1].

When the hemorrhage is found to be of placental origin it usually will be due to fragments which are concealed, an extra lobe (succenturiate), placenta previa, premature separation or placenta accreta.

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*Presented before the Section on Ob.-Gyn. at the eighty-seventh annual meeting of the Mississippi State Medical Association, May 10-12, 1955, Biloxi, Miss.

EMBOLI — Griffon and Dyer have reported deaths from air emboli in two cases and amniotic fluid emboli in three cases[2]. If one would review the literature he would find that these complications probably occur more frequently than reported. In Charity Hospital, New Orleans, Louisiana, from 1942 to 1949, there were 56,945 women delivered with no maternal deaths being reported as due to amniotic fluid emboli. (Table 2)[3]. From 1950 through 1952 there were 22,393 deliveries with 1.21 maternal deaths per thousand and three of these were proved to be due to amniotic emboli. Is this a new cause of death or has it gone undiagnosed in the past?

TABLE II
MATERNAL DEATHS
(Charity Hospital, New Orleans)

Total Deliveries	*Maternal Deaths (Uncorrected)*	*Amniotic Fluid Embolus Pct., Total Deaths*
56,945 1942-1949	1.9	0
22,393 1950-1951	1.21	11.1

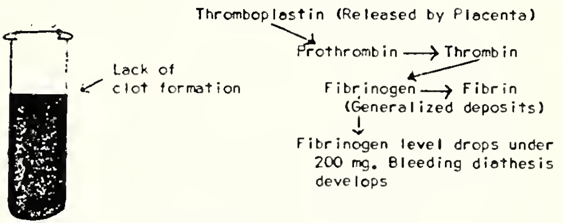
Air emboli are most likely to occur during manual removal of the placenta, single or twin. I am personally familiar with one which occurred during an unsuccessful attempt at removing a placenta accreta.

CARDIAC DECOMPENSATION—It is a well established fact that in the gravid woman the maximum load is placed on the heart at the twenty-eighth week of gestation. This has been proved by studies of cardiac hypertrophy, cardiac output, stroke volume, blood plasma volume, *et cetera*. After the twenty-eighth week there appears to be a decrease in the demands placed on the heart or an increase in cardiac efficiency. Immediately following delivery the cardiac load appears again to reach or surpass that reached at the twenty-eighth week of gestation, thus confronting the attending physician with a critical condition which is suddenly reached. This condition usually is resolved in twenty-four to forty-eight hours but may last as long as ten to fourteen days. It, therefore, behooves us to be cognizant of the patient's cardiac status if we wish to prevent the unexpected death of a patient which we thought would have a successful termination of her pregnancy.

AFIBRINOGENEMIA—This condition has been observed to be initiated by many factors such as blood transfusions, injury, shock, long-standing fetal death, and amniotic fluid emboli[4]. During pregnancy it has been shown that the placenta (especially in those cases of concealed abruptio) may, by autolysis of decidual and placental tissue, release large amounts of thromboplastin into the blood stream. This thromboplastin converts prothrombin into thrombin which in turn converts fibrinogen into fibrin. Once this occurs the normal blood level of fibrinogen of 200-400 mg. is found to be markedly decreased (Figure 1).

When this condition exists the patient develops a bleeding diathesis, and will bleed from every cut surface, uterus, as well as the mucous membranes of the mouth, nose, bladder and often the lungs. It has been proved that the coagulant activity in amniotic fluid will produce a like condition[5].

Figure 1.


Thromboplastin (Released by Placenta)
Prothrombin → Thrombin
Fibrinogen → Fibrin
(Generalized deposits)
Fibrinogen level drops under 200 mg. Bleeding diathesis develops
Lack of clot formation

MANAGEMENT—Hemorrhage at the time of delivery should be anticipated, certainly in those cases with factors commonly thought to be responsible for uterine atony.

When atony of the uterus is anticipated it may be well for one to follow the technique described by Davis[6] in which ergonovine 0.2 mgm. is given intravenously as soon as the anterior shoulder comes into view. The attending physician then allows twenty to thirty seconds before completing the delivery. The uterus contracts, separating the placenta, thus pushing it into the lower uterine segment and vagina. In those cases in which deep and/or prolonged anesthesia has been necessary methergine or ergonovine may be used to prevent bleeding following the third stage.

Should the bleeding continue and the uterus fail to contract in spite of having given ergonovine or methergine to the patient it would be wise for one to examine the uterine cavity for fragments of placenta, an extra lobe and for uterine rupture. If the attending physician is sure the uterus is not ruptured, an intravenous drip consisting of one thousand cc. of five per cent glucose with 1 cc. of pitocin added may be given at the rate of forty to fifty drops per minute. This usually produces good uterine tone.

When one encounters an abruptio placenta with a couvelaire uterus which has marked extravasation of blood into the myometrium, the power of contraction of that uterus is often lost. We should strive to make an early diagnosis of the cause in all cases of prenatal bleeding. Abruptio placenta is most likely to occur in patients with toxemia, certainly in those with eclampsia. It is accompanied by a rigid uterus which does not relax, and because of concealed bleeding the uterus often suddenly increases in size. The patient commonly complains of constant pain and tenderness which may or may not involve only a small portion of the uterus. There may be varying degrees of shock and maybe a bleeding tendency because of lowered blood fibrinogen. Frequently there is no sign of fetal life and we have found that immediate delivery is vital to the mother's well being.

The baby may be delivered vaginally; even so, one occasionally will find a uterus that fails to contract, thus allowing massive hemorrhage. This reaction indicates the presence of a uterus which is physiologically unable to respond to oxytocic drugs, massage or packing. Afibrinogenemia with failure of blood clotting will complicate the picture, and the treatment of this, as well as an otherwise normal uterus that refuses to contract, one that is impaired because of multiple fibroids or uterine rupture, should be immediate hysterectomy and blood replacement.

Rarely is uterine packing found to be of much value for too often it only serves to give the attending physician a sense of false security, certainly in the cases of undiagnosed uterine rupture and uteri which bleed because of afibrinogenemia, thus valuable time is lost as the patient's shock becomes more pronounced. The uterine pack, with few exceptions, should be used only as a stop gap until the patient can be taken to surgery.

During the period of January, 1949, to October, 1952, we did 85 total hysterectomies at cesarean section or in the immediate postpartum period[7]. Of these, 10 were for couvelaire uteri, 14 because of uterine fibroids, and six because of uterine rupture. Two deaths occurred in the above group; one resulting from a longstanding, neglected couvelaire uterus and the other from peritonitis following undiagnosed uterine rupture.

Bell, Wilson and Wilson[8] reviewed the literature and found sixty-seven cases of inversion of the uterus with an uncorrected maternal mortality of 17.9 per cent. Inversion of the uterus may occur with or without mis-management of the third stage. The maternal shock is usually far more pronounced than one would suspect from the amount of blood loss. The uterus should be replaced to its normal site while immediate shock measures are being carried out. Replacement of the uterus may be done by applying multiple sponge forceps to the cervix and manually replacing the fundus to its normal site. After having replaced the fundus, a uterine pack may be very useful. When one is unable to replace the fundus manually, and when the inversion is longstanding, one may have to resort to the Huntington operation.

Following delivery the cervix should be inspected and lacerations repaired. Vaginal lacerations should be explored, whether due to extension of an episiotomy or not. A suture at or just above the apex of the laceration usually will prevent concealed bleeding. Late shock has been produced by small lacerations in the region of the clitoris and urethra.

When a diagnosis of concealed hematoma is made it should be opened, evacuated, and the bleeding points either ligated or sutured. The mortality rate of this condition has been reported as 17.7 per cent[9]. If the hematoma is high in the vagina, shock may occur late in the postpartum period and the shock is out of proportion to the visible blood loss. Immediate laparotomy may be life saving. A tight vaginal pack along with an indwelling catheter will usually assure one of hemostasis in those patients which bleed from multiple points that commonly occur in cases of vaginal varicosities.

Hemorrhage may result from failure of contraction of the placental bed in the lower segment. Such a condition usually exists in cases of placenta previa, which more commonly occurs in twin pregnancies; thus, one may have a superimposed atonic uterus and a hysterectomy may well be indicated.

If the patient has a history suggestive of postpartal endometritis or retained placenta requiring manual removal of the placenta, one should, in the case of postpartal hemorrhage, suspect placenta accreta. Dyer, Miller and McLaurin[10] have reported 18 cases in 144,590 deliveries or 1 in 8,032 deliveries. Of these 18 cases there were two maternal deaths (11.1 per cent). Microscopic evidence was found in fifteen cases, and the other three cases were not operated. One of the deaths was caused by an air embolism during attempted manual removal of the placenta. The second death was that of a patient delivered at home, admitted in shock, and after the diagnosis of placenta accreta was made immediate hysterectomy was done and the patient died two hours following surgery. Before attempted manual removal of a retained placenta, it is wise to be prepared for immediate transfusion and/or hysterectomy.

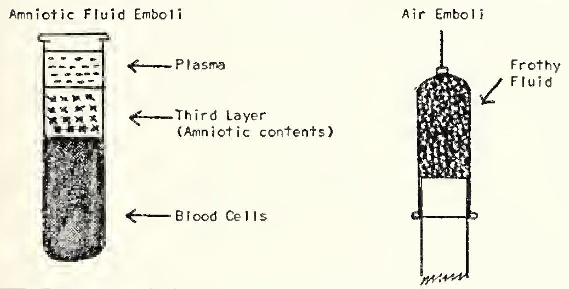
Placenta accreta is usually easily diagnosed for it most commonly occurs in multigravida women in whom manual removal of the placenta was necessary, those having had postpartal endometritis, previous uterine surgery and/or uterine fibroids.

When this type history is found, the placenta fails to separate, and the obstetrician is unable to find a line of cleavage, placenta accreta must be strongly suspected and when found, immediate hysterectomy has proved to be the procedure of choice.

In amniotic fluid emboli, overwhelming shock, which may occur during labor or immediately following labor, is almost inevitably found. These patients appear anxious, restless, and may have a feeling of impending danger. They may also develop a bleeding diathesis because of an accompanying afibrinogenemia.

To my knowledge there is no known method of preventing amniotic fluid embolus. The reaction of the patient is thought to be anaphylactoid to the contents of the amniotic fluid. The treatment, provided the diagnosis is made early, consists of general supportive measures, transfusions, and the administration of fibrinogen. The diagnosis is made from physical signs and by centrifuging blood taken from the vena cava or the right side of the heart. According to Gross and Bentz[11] the blood will separate into three layers (Figure 2), instead of a buff layer and a clear layer above the layer of cells.

Figure 2.
Blood Drawn From Heart Immediately



The middle layer can be fixed in bloc, and sections will reveal the presence of amniotic contents. At the autopsy table of a case I attended, the diagnosis was made grossly on sectioning the lungs, the cut surface of which showed numerous areas of amniotic and meconium emboli. On opening the larger branches of the pulmonary arteries, small flecks of vernix caseosa were found.

The microscopic findings reveal emboli in the arterioles and arteries of the lungs as well as in the veins and venules of the myometrium. These emboli consist of keratinized squamous cells, mucin and lanugo hair. Patchy areas of emphysema, pulmonary edema, and atelectasis are also found.

In air embolism the patient becomes dyspneic, cyanotic and shows signs of air hunger. The pulse becomes rapid and irregular, there is no blood pressure, and death occurs quite suddenly. The patient, if not anesthetized, usually complains of retrosternal pain and becomes quite restless. The clinical appearance of the patient is quite similar to that of one with an amniotic fluid embolus but on auscultation of the heart the physician may hear a rushing, gurgling sound caused by the mixing of air and blood.

The treatment of air embolism depends on removal of air from the right ventricle and if it is to be successful it must be done immediately by aspiration, either at the fifth right interspace or at the tip of the xiphoid.

Immediately following delivery the cardiac patient should be managed in the same manner as one would manage any cardiac patient in which there is anticipated cardiac failure. If the patient develops acute failure in the immediate postpartum period, nasal oxygen, rapid digitalization, general supportive measures, and often phlebotomy have proved to be of great help. A postpartum hospital stay of ten to fourteen days is advisable during which time sedation and ambulation should be utilized to fit the tolerance of the patient, and disturbing influences minimized.

Afibrinogenemia has been discussed in connection with placenta accreta, amniotic fluid embolism and longstanding intra-uterine death of the fetus. Of importance is anticipation, correction of the causative factor, and speed with which whole fresh blood and fibrinogen is administered. In most cases one to two grams of fibrinogen is sufficient to correct the bleeding tendency in patients, but some will require as much as four grams.

CONCLUSION

An adequate history and physical examination will provide the obstetrician with certain important facts that may help him prevent many of the emergencies of the third stage of labor. Anticipation of, and early diagnosis, certainly help to institute early correction of the cause which in turn will help us reduce our maternal death rate.

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DISCUSSION

Dr. John R. Bise (Jackson)—The third stage of labor and immediate puerperium include the vast majority of serious maternal emergencies. There is little to be added to what has been covered so well in the little time available.

I would like to emphasize the point made that we anticipate many of these emergencies when certain well-known predisposing factors are present.

We should observe our patients during a recovery phase to cover this critical period of early involution. Long ago the term "fourth phase" was proposed to cover the first postplacental hour. As was pointed out the critical period may vary to several hours in certain cases and the terminology is unimportant. We must keep our patients under careful observation until they are safely reacted from anesthesia, uterus firmly contracted with no excessive bleeding and vital signs stabilized. The patient should be in an area where fibrinogen, blood, oxygen and all anti-shock facilities are readily available for a minimum of one hour.

With intravenous pitocin in such widespread use, it certainly cannot be overemphasized that the infusion be continued for at least an hour after completion of the third stage. Recent evidence certainly confirms the impression that in the presence of atony the concentration be increased to 4 or 5 cc. per liter.

We also know the importance of the placenta as an accessory adrenal. With the delivery of the placenta our parturients are much more vulnerable to situations of stress. We must be prepared to administer the necessary adrenal steroids in many of our emergencies of the early puerperium.

In closing let me again make a plea for our use of a recovery phase of observation. We can prevent many cases of excess hemorrhage, shock, death and successfully manage most emergencies if we provide for proper facilities and observation during the critical phase.

Nothing great was ever achieved without enthusiasm—Emerson

A noble aim, faithfully kept, is a noble deed—Wordsworth

Liberty is one of the most valuable blessings that Heaven has bestowed upon mankind—Cervantes

And because right is right, to follow right were wisdom in the scorn of consequence—Tennyson

Report of Field Counselor on Careers in Nursing for Mississippi

FRANCES L. MOAK
Meridian, Miss.

By "recruiting" we mean developing in young women an informed and emotional attitude that favors nursing as a career. Intelligent recruiting must mean the discriminating attraction of first-class young women who have a talent for human relations and a taste for good hard work.

Nobody can pretend that attracting the right kind of new nurses will be, or has been, an easy task. It will be an uphill climb every inch of the way—not only because of the pronounced cultural bias against nursing in Mississippi, low prestige of our Mississippi schools, lack of educational facilities, and some other reasons—but also because the need for nurses is more acute than ever. We are familiar with these reasons: our population has doubled since 1900, our aging population, hospital insurance plans are enabling more to use hospital facilities, new drugs have helped to cut average patient stay thereby increasing the frequency of those first few critical days when the most skilled nursing care is needed. The need has been so acute that we have reached the handwringing stage. Is it any wonder that here and there "recruiting" has actually taken on hysterical aspects?

In the long view, however, the prospects for attracting a continuing supply of new nurses are distinctly encouraging. We say this for two reasons:

First, there has been such an upsurge of public interest in nursing that eventually, if we are able to stimulate the consumers of nursing to maintain their concern about their local needs and the quality of nursing provided, we have the possibility of building a program that will be adequate for our needs. Undoubtedly there exists a relationship between the many recent community activities sponsored by county committees in behalf of nursing and the fact that the Committee on Careers in Nursing, serving as the nursing organizations' lay advisory arm, has been waging an intensive press and radio program to present the facts about the nursing shortage to Mississippians.

Second, the prospects for attracting new nurses are encouraging because there is a new alertness on the part of nurses themselves to their own responsibilities in helping their profession come of age. There is no doubt whatever that increasing numbers of nurses are setting out to prove to their communities, and to themselves, that they represent a profession that may well hold the key to the future health program in Mississippi. Their critical needs and aims must be encouraged. And they are daring to say so.

The forward-looking nurse in Mississippi today is a professionally dedicated, articulate, community-minded, world-minded individual.

Forward-looking nurses and friends of nurses are sparking a great variety of activities that bid new nurses to join them.

Here are a few of the ways in which nurses and interested groups all over the state are helping sensitize young women to the duties, opportunities—and yes, to the downright pleasures of a firm sense of vocation—that belong so importantly to nursing.

MISSISSIPPI'S SATURATION PROGRAM

(To be used in local communities or counties)

1. Public library display on "Books About Nursing." Distribute annotated reading lists to interested young women.
2. Store window display. Often stores that sell uniforms or shoes will be glad to prepare a display featuring nursing. Ask all local stores to display these posters in show windows. Girl Scouts distribute the posters.
3. Church participation. Ask ministers to print short announcement in the church bulletin about nursing as a Christian vocation. Some may like to provide a blank to be filled out by the congregation:

   This Young Lady May Be Interested in Nursing
   Name ....
   Address ....

4. Newspaper stories. Ask local newspapers in the county to publish feature stories on nurses and nursing. Reporters might like to interview outstanding nurses in the community.
5. Radio and television stations. Ask them to make spot announcements regularly. Some might like to give more time for a radio interview. Television shows: nurses caps, capping ceremony, graduation exercise of nursing school, etc.
6. High Schools. Ask schools to show a film on nursing as a career to all high school girls. Following the showing of film obtain a list of girls interested in nursing and send this list to the Nurse Box.
7. Federated Women's Clubs. Mail each club a fact sheet on nursing needs and opportunities in Mississippi to be read at club meeting.
8. Home Demonstration Clubs. Ask each club to devote five minutes on the program to nursing.
9. Hospitals. Invite hospitals to plan Open House for young women interested in nursing. Arrange display in lobby featuring school bulletins from each school of nursing in Mississippi. Use patient card or letter.

10. District Nurses Associations offer counseling and guidance service. Each nurse is assigned one potential student nurse to see. She is also asked to provide an opportunity for an observation in nursing. Names of potential student nurses are secured from Nurse Box.

11. Community Film Forum on Nursing. This may be sponsored by a service club.

The American Physician and the World Medical Association

LOUIS H. BAUER, M.D.
Secretary-Treasurer, the World Medical Association

The World Medical Association has become a strong factor in protecting and promoting the professional interests of the medical profession and the cause of world peace.

Now in its ninth year, W.M.A. is a federation of the most representative national medical association in each of 52 nations. These member organizations represent more than 700,000 physicians. The American Medical Association is a leading member of the World Medical Association.

Doctors of medicine the world over cherish the same basic ideals of conduct and the same devotion to the welfare of mankind. The World Medical Association is cultivating the common purposes of the profession. This growing community of interest is a source of strength to the physicians in every land.

Already, by solid accomplishments, The World Medical Association has earned the right to call itself "the international voice of organized medicine." Thanks largely to the United States Committee and similar supporting committees of physicians in other leading nations, W. M. A. has a well-tried constitutional structure, a small but efficient secretariat, and a tri-lingual journal whose world-wide influence and value to the profession is rapidly growing. The permanent office of the secretariat—which serves both the Association and the United States Committee—is located in the United States.

The membership of the United States Committee has been growing slowly but steadily. In 1955, the Committee reached its first important milestone of growth: a membership of 5,000 American physicians.

Even with this modest membership representing scarcely three per cent of American medicine, important achievements have been registered, many of which would have been impossible if the American pharmaceutical and related industries had not consistently matched the financial support given the United States Committee by its physician members.

Last year, 176 members of the United States Committee attended the Ninth General Assembly of The World Medical Association in Vienna. This privilege is available to members of national supporting committees. There is unique inspiration, personal enjoyment and intellectual stimulus in meeting our colleagues from many lands, and in helping to formulate programs that may have incalculable benefits for the profession, and for the welfare of the world.

The World Medical Association assists traveling physicians by providing them with introductions to colleagues in other countries, by making speaking engagements for them abroad by acquainting them with visiting doctors from other countries, and, of course, by sending the "World Medical Journal" to members of all national supporting committees.

In 1953, the World Medical Association sponsored the First World Conference on Medical Education, held in London. Representatives from many nations have reported concrete benefits from this epochal meeting in terms of better standards and practices in medical education in their countries. A Second World Conference on Medical Education is now being planned for 1959, to be held in the United States.

Two other World Medical Association accomplishments that have brought great credit to our profession and strengthened its solidarity throughout the world were the promulgation in 1948 of the Declaration of Geneva, comprising a modern re-statement of the Hippocratic Oath, and the adoption in 1949 of an International Code of Medical Ethics.

The activities of W. M. A. in the field of social security are of particular interest to American physicians. They have revealed boldly and unmistakably the physician's inherent and universal need for freedom from third-party interference with the practice of medicine. Such activities should not only fortify but inspire the efforts of American medicine to solve our socio-economic problems without resort to governmental subsidy or control.

On the international stage, the World Medical Association has endeavored to counter efforts of the International Social Security Association and the International Labour Organization to promote state medicine under social security programs. The World Medical Association has earned the respect of the International Labour Organization for its defense of the interests of medicine against the International Labour Organization Convention for Medical Socialization in 1952. Now the World Medical Association is attempting to wrest from the International Labour Organization the recognized world leadership in the field of occupational medicine.

The World Medical Association has engaged in efforts to protect medical research; to safeguard the National Pharmacopoeias and the rights of individuals discovering new drugs and agents to name them.

The World Medical Association has served the profession by representing it in relation to the World Health Organization—the official health agency of the United Nations. In the attempt by WHO and other agencies to draft an International Code of Medical Law, W. M. A. has insisted that such a code be based upon ethical principles acceptable to the profession.

For all these activities, and for many more which demand our attention, additional funds are needed. Each new member not only contributes his nominal membership dues, but, more vitally, he lends his name and influence to the program of the W.M.A. and of its United States Committee.

America's world leadership challenges America's physicians to make the United States Committee a truly impressive and representative body of American physicians.

Every individual physician in the U. S. A. is eligible for membership in the Unted States Committee. Annual membership dues are $10.00. The dues for Patron Members are $100.00 or more. Many of our members regularly make contributions to the U. S. Committee, in addition to their annual dues. All such contributions to the United States Committee of the World Medical Association are tax deductible.

As the international voice of organized medicine, the World Medical Association is speaking for you. It is seeking to promote and protect your interests. You are urgently invited to help these efforts along, by joining the United States Committee, and participating in its work.

1957 PRIZE ESSAY CONTEST

The Council on Undergraduate Medical Education of the American College of Chest Physicians offers three cash awards to be given annually for the best contributions prepared by undergraduate medical students on any phase in the diagnosis and treatment of chest diseases (heart and/or lungs).

The first prize will be $500; second prize will be $300; and third prize $200. Each winner will also receive a certificate of merit.

The winning contributions will be selected by a committee of chest specialists and will be announced at the annual meeting of the American College of Chest Physicians to be held in New York City, May 29-June 2, 1957. All manuscripts become the property of the American College of Chest Physicians.

Applicants are requested to study the format of *Diseases of the Chest*, the official of the College, as to length, form, and arrangement of illustrations to guide them in the preparation of the essay. A copy of the College journal will be sent upon request. The following conditions must be observed:

1) The completion of an application form, which may be obtained by writing to the Executive Director, American College of Chest Physicians. 112 East Chestnut Street, Chicago 11, Illinois, U. S. A.

2) Five copies of the manuscript typewritten in English (double spaced) should be submitted to the College offices in Chicago not later than April 10 1957.

3) The only means of identification of the author shall be a motto or other device on the title page and a sealed envelope bearing the same motto on the outside, enclosing the name and address of the author.

INTERPRETING MEDICAL LITERATURE

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SURGERY

SYNDROME OF THE "RUPTURED DISC"

ORLANDO J. ANDY, M.D.

Division of Neurosurgery
The University of Mississippi Medical Center

A ruptured intervertebral disc presents syndromes which vary according to the level and the character of the rupture. The most frequent sites of rupture in the order of decreased frequency are the lumbar, cervical and lower thoracic regions of the spine. The rupture may be 1) midline and thus produce a syndrome of spinal cord compression, in the cervical and thoracic region and low back pain in the lumbar region or 2) lateral and thus produce a syndrome of spinal nerve compressions.

The more typical history of a laterally ruptured lumbar disc between L 4 and L 5 or L 5 and S 1 is one of recurrent low back pain. The pain is an ache which may persist for varying periods of time, several weeks to several months. The onset may be insidious or sudden (often described as a "catch"). Pain in the low back is aggravated by movement, coughing, lifting, etc. After a few days to several weeks the pain radiates into the hip. Within a few more days it radiates into the leg and may even involve the toes. Pain is usually sharp and shooting. Occasionally one of the leg muscles such as the gastrocnemius develops painful cramps. A complaint of limping may be present. On rare occasions patients will complain of hyperesthesia (extreme sensitiveness to bed clothes which touch the skin, etc.). During the exam, one must be careful not to misinterpret an area of hyperesthesia as being normal and the uninvolved areas as being hypoesthetic thus leading one astray. Sensory examination may reveal decreased sensation over the posterior lateral aspect of the leg or thigh or the lateral aspect of the foot and small toe, signifying an L 5 - S 1 ruptured disc with the involvement of the S 1 nerve root.

Rupture of the L 4 - L 5 disc produces sensory changes over the lateral or antero-lateral aspect of the thigh and leg extending to the dorsum of the foot and the large toe. Sensory changes may or may not be accompanied by muscle weakness. One must remember that muscle weakness may occur without sensory changes. In order properly to evaluate muscle strength, in the leg, the examination is meticulously performed with the foot in four successively different positions. The patient fixates the foot in 1) plantar flexion, 2) dorsiflexion, 3) inversion, and 4) eversion, and the examiner applies a firm and constant counter force during each fixation. While observing a patient during conservative treatment, the absence of pain may lead one to think "all is well" although a muscle exam may reveal marked muscle weakness and wasting. An awareness of this will prevent many subsequent headaches to the physician. Flabbiness and weakness of the gluteus maximus will often accompany an S 1 nerve root involvement. Absent ankle jerk is associated with an L 5 - S 1 and not an L 4 - L 5 rupture. Curvature of the lumbar spine is obliterated and there is paravertebral muscle spasm on the side of the lesion. Patient can bend way from the side of the lesion but not toward it. Elevation of the extended leg of the involved side will often elicit pain in the back or the same leg.

Patients with ruptured third lumbar discs will complain of weakness in the leg while walking up or down stairs. They complain of weakness in the knee and occasionally fall while stepping down from a street curb, etc. Numbness is present over the anterior aspect of the thigh and just below the knee along the anterior medial leg. Extension at the knee is weak but not flexion. Knee jerk is reduced or absent and the quadriceps muscle may be atrophied.

Cervical disc ruptures are also characterized by an insidious or sudden onset. Neck is still and painful. Pain may radiate into precordial region, supraclavicular region, shoulder, paravertebral border of the scapula and down the arm to the fingers or thumb. It may also radiate to the occipital region just behind the ear or to the frontal temporal region just behind the eye. The condition is aggravated by factors similar to those mentioned under ruptured lumbar discs. A sensory deficit occurs over the posterior or postero-lateral aspect of the arm and forearm. It extends into the thumb and index finger in cases of C 5 - C 6 ruptures (sixth cervical nerve root compression) and the index and middle fingers in cases of C 6 - C 7 ruptures (seventh cervical nerve root compression). Patients may subjectively experience numbness and tingling or may have episodes of hyperesthesia over the similar dermatomes. Less frequently subjective sensory changes are present along the medial aspect of the arm, forearm and fifth finger. Weakness in flexing the arm at the elbow may be demonstrated in addition to biceps hyporeflexia (sixth nerve root compression). Weak extensors and triceps hyporeflexia is indicative of seventh cervical nerve root compression. There is obliteration of the normal cervical curve, spasm of the paravertebral muscles and inability to flex the neck toward the side of the lesion. Tenderness may be present at the interspinous level of the lesion and at points of referred pain as mentioned above.

Cervical spondylosis, ridging or mid-line ruptured cervical discs produce a syndrome characterized by involvement of the long tracts of the spinal cord. The mechanism is thought to be one of spinal cord compression. Projection of the ligamentum flavum into the posterior portion of the spinal canal during hyperextension is also thought to contribute to the compression syndrome. The syndrome consists of spasticity, hyperactive reflexes, clonus and weakness. Patient complains of stiffness, stumbling, falling down and not being able to walk fast. The syndrome of cervical nerve root compression may or may not accompany the symptoms and signs of chronic and progressive cord compression. Occasionally the long tract signs may be accompanied by atrophy of the small muscles of the hand and thus be confused with degenerative diseases of the spinal cord.

In the lumbar region this problem is not encountered because of the cord terminating at L 1 - L 2. However, a mid-line ruptured lumbar disc will produce a low back pain without nerve root involvement unless it extends laterally.

The upper thoracic mid-line or lateral ruptured intervertebral discs present syndromes similar to those in the cervical region having an analagous pathological condition. However, lower thoracic lateral disc ruptures tend to stimulate the syndromes described for lumbar ruptures.

Because of the increasing number of people living to an old age, it is extremely important to be constantly aware of the various disabling syndromes which can be due to ruptured intervertebral discs, especially those in the mid line. An aged and incapacitated patient thought to have spinal cord degenerative or arteriosclerotic disease should not be discharged without considering cervical intervertebral disc pathology in the differential diagnosis. Recognition of the various syndromes produced by the "ruptured disc" may help a totally incapacitated patient become a happy and productive citizen.

PEDIATRICS

Treatment of Scarlet Fever with Terramycin in Hospitalized Patients. M. Cristofani and F. Giannelli, Minerva pediat. 8:130-134 (Feb. 11) 1956 (in Italian) (Turbin, Italy.)

The authors report on 231 cases of scarlet fever. An attempt was made to reduce to a minimum the period of contagion and to bring about a rapid recovery by treatment with antibiotics. The patients were divided into three equal groups. One group was treated with terramycin, the second with penicillin, and the third did not receive any antibiotics. Ages of the patients varied from 1½ to 40 years. Terramycin was found to be far more effective than any other drug in the treatment of scarlet fever. Temperature drops sooner. Complications usually incurred in the second stage of the disease are fewer and less severe. The onset and scaling of the rash are not influenced, nor is the frequency of residual subfertile states.

Penicillin seems to be more effective in preventing rheumatism; 2.59 per cent of the patients treated with terramycin, 6.49 per cent of the patients not treated with antibiotics, and one of the patients treated with penicillin contracted rheumatism. Otitis occurred in 1.29 per cent of the patients treated with penicillin and in 3.76 per cent of those not treated wth antibioties, it did not occur in patients treated with terramycin. Nephritis occurred only in patients not treated with antibiotics.

Comment: This is a very interesting and important article for pediatricians, as well as general practitioners, to read, since practically all of them treat scarlet fever at one time or another.

We have treated many cases of scarlet fever and find that penicillin and sulfa drugs are not only good for the prevention of scarlet fever, rheumatism, and other serious diseases, but are also curative agents for scarlet fever and its complications. Terramycin, in my opinion, is likely to cause gastro-intestinal upsets while penicillin and sulfa drugs tend to cause very little trouble. One should be on guard for gastro-intestinal upsets when prescribing terramycin, and should discontinue the drug immediately if this upset should occur.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

ANNUAL ASSEMBLY, SEPTEMBER 19 AND 20, 1956, HOTEL HEIDELBERG, JACKSON, MISS.

Wednesday, 19

"Sterility Studies" and "Ectopic Pregnancy," by Woodard D. Beacham, M.D., Professor of Clinical Gynecology and Obstetrics, Tulane University.

"Newer Synthetic Narcotics and Their Antidotes — Pharmacology," by M. J. Schiffrin, Ph. D., Assistant Professor, Division of Anesthesiology, University of Illinois College of Medicine.

"Newer Synthetic Narcotics and Their Antidotes—Transmission," by Max S. Sadove, M.D., Professor of Surgery (Anesthesiology) and head of division of Anesthesiology, University of Illinois College of Medicine.

Banquet Speaker—William M. Sproul, M.D., Des Moines, Iowa, Vice-President of the American Academy of General Practice — "The Academy Has Been Challenged."

Thursday, 20

"The Clinical Importance of Dealing with the Personality Aspects of Patients" and "What Is Normal?" by P. J. Sparer, M.D., Chief Psychiatry and Psychosomatics, V.A. Kennedy Hospital, Memphis, Tennessee.

"The Evaluation and Management of Cardiac Patients for Surgery" and "The Evaluation and Management of Heart Disease in Pregnancy," by Wm. J. Atkinson, Jr., M.D., Internal Medicine, Mobile, Alabama.

"Convulsive Seizures in Childhood" and "A Practical Approach to Common Behavor Problems" by James H. Hughes, M.D., Professor of Pediatrics, University of Tennessee School of Medicine.

STATE OFFICERS' CONFERENCE

A State Officers Conference was held in Kansas City in connection with the dedication of the new AAGP Headquarters Building. Mississippi Academy President, Wm. E. Lotterhos, M.D., delivered an address, "Duties of State Chapter President, Vice-President and President-Elect." More than sixty state chapter officers attended the dedication and conference. Principal speaker was the president of the American Medical Association, Dr. Dwight Murray.

GETTING ACQUAINTED

This is the third installment of the roster of MAGP members. (Members in District I and II were listed previously):

DISTRICT III

Walter W. Crawford, Tylertown, Director; Jim C. Barnett, Brookhaven; William O. Biggs, Osyka; Charles Patton Bass, Columbia; Warren A. Hiatt, Magnolia; T. L. Moore, Jr., McComb; Frank C. Massengill, Brookhaven; J. O. Wood, McComb; Marcus E. Waring, Tylertown; A. V. Beacham, Magnolia; James M. Brock, McComb; Elgin C. Cowart, Jr., Brookhaven; Harry C. Frye, Jr., Magnolia; W. T. Mayer, McComb; Eric P. Robbins, Brookhaven; F. F. Smith, Meadville; Robert H. Barnes, Natchez.

POSTGRADUATE STUDY RECORD

This is a reminder to all members to keep your study record up-to-date. Some of us haven't kept our records current—or possibly just forgot to send them in—and it creates unnecessary extra work for the executive secretary. Even worse, it could lead to being dropped from the rolls of the Academy. We don't want to lose good members this way, so remember to keep your study records in order, and send them in on time.

One last reminder — See you at the MAGP Annual Assembly in Jackson — DON'T FORGET IT!

The pure, the beautiful . . . the impulse to a wordless prayer—these things can never die.—
DOUDNEY

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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Address all material for publication to W. H. Anderson, M.D., 104 Hospitality Street, Booneville, Mississippi.

§

NOT ENOUGH COOPERATION

We are persuaded that the polio vaccine will control this dreaded disease if it is given the opportunity. The vaccine is not yet being utilized to obtain its full benefits. The united efforts of the medical profession are necessary to prove the efficacy of this preventative.

A NEEDED BALANCE

A practical problem in human economy is to balance doctors' bills, medical costs, and hospital charges with the wants, wishes, and sometimes demands of the sick patient. As they stand now there are great spaces that need filling in very badly. The name of the man who can do this job should be called blessed. The Golden Rule might be applied by all concerned.

MEDICAL CENTER DEDICATION

October 23 and 24 are dates to reserve on your calendar for the most outstanding scientific presentation of the year. Dean David Pankratz announces that nationally known men will feature all four sessions of the two-day dedication of the new University of Mississippi Medical Center. A banquet will highlight the evening of October 23.

Full details of this important history-making event for Mississippi medicine will come in the October issue. Make your plans to attend.

THE SOUTHERN MEDICAL

The Southern Medical Association, now composed of sixteen states and the District of Columbia, is to hold two very important meetings this fall, one on October 2-3 in Chattanooga commemorating its organization and the other in Washington, D. C., November 12-15, celebrating its Golden Anniversary.

Fifty years ago as by inspiration a few doctors of the mid-South translated their vision into the Southern Medical Association at Chattanooga, Tennessee, October 2-3, 1906. Many others were thinking along the same line as evidenced by their rapid enrollment in the organization.

Drs. Jere L. Crook, Tennessee; Walter W. Crawford, Mississippi; and H. H. Martin of Georgia were designated to write the Constitution and By-Laws. The first thought was to have the states of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee as a district branch under the American Medical Association.

In addition to the Constitution and By-Laws Committee at the time of the organization of the Southern, two other men are due special consideration, Dr. Giles C. Savage, then president of the Tennessee State Medical Association, a native of Mississippi, and Dr. J. B. Cowan, founder of the Tri-State Medical Association composed of Alabama, Georgia, and Tennessee. Dr. Savage no doubt did a lot of the original thinking and Dr. Cowan moved the adoption of the Constitution and By-Laws and carried it like magic. He was chief surgeon on the staff of General Nathan Bedford Forrest.

The Southern Medical Association, the second largest general medical association in the nation, from the beginning has promoted scientific medicine by research and by application of the known truths in medicine. This organization has been outstanding in promoting good fellowship among its members and friendly relations with the people. The Woman's Auxiliary to the Association has activated a wonderful spirit of good fellowship and has been a great power in helping to educate the laity.

During the life of this Association medicine has traveled half the distance from its beginning. The South has had some part in the magic march of medicine through such men as Long, Sims, Harris, Matas, Bass, and many others. The doctors of the South and members of the Southern Medical Association have furnished good medicine and good surgery to our people, but they have done more. They are good citizens and have taken an active part in building health assets.

Dr. Dudley Jones of Jackson who recently passed on, and at the time of his death was the oldest past councilor of the Southern, stated not long before his death: "The most important benefit I have received from membership in the Southern Medical Association is the personal acquaintance with the leading men in medicine in our Southland."

Miraculous as the march of medicine has been during the life of the Southern Medical, the mind of man cannot imagine what it may be within the next fifty years.

The opportunities are too great and the responsibilities too urgent for us to relax our efforts. In the field of medicine we yet have too many worlds to conquer, too much service to render, too many discoveries to make. The destructive qualities of the hydrogen bomb must be balanced with its saving powers, might must be tempered with right, the speed of the automobile with safety, length of years with successful living, and physical and mental health with the spiritual. Let us review the past with pride and step upon this history of the Southern Medical and look into the future with the will to go forward. It is good to be a member of an organization like the Southern Medical.

FIFTY-YEAR RECOGNITIONS

The first week in September the East Mississippi Medical Society presented Dr. George W. Bounds with a fifty-year certificate and a fifty-year pin. This society is very thoughtful of its fifty-year men and provides a ceremony fitting in every respect. We wish to congratulate Dr. Bounds.

The Northeast Mississippi Medical Society at its third quarterly meeting in Amory will present a certificate and pin to Dr. Hunter Scales of Starkville honoring him for his fifty years of faithful and efficient service in the practice of medicine. He has been outstanding in the profession and a citizen in the interest of his town.

NO ONE TO TAKE HER PLACE

The shortage of nurses in Mississippi and in the nation remains an urgent problem. At this time in the main we have three classes of nurses: the college graduate who has completed in addition her nurses course; the registered nurse with high school training and maybe some college work; and then the practical nurse. The R.N. has been the right arm of the medical profession for nearly a half century. For bedside nursing, for inspiration, for education and for public relations she is not surpassed. Mississippi is or soon will be well qualified for training the registered nurse.

UNIVERSITY NEWS

Dr. David Pankratz, dean of the University of Mississippi School of Medicine, announces that a two-day dedicatory scientific symposium will be held by the school on October 23 and 24 in Jackson.

Nationally eminent speakers will be presented in four sessions and a formal dinner will be held on October 23. Details of the event will be announced later.

AAGP DEDICATED

The American Academy of General Practice dedicated its national headquarters building in Kansas City on September 1, 1956. The principal speaker was Dr. Dwight H. Murray, Napa, California. The Academy was organized in 1947. More than 21,000 family doctors belong to the Academy.

NORTHEAST MEDICAL TO AMORY

The September meeting of the Northeast Mississippi Medical Society will be held in Amory, home of the late Dr. G. S. Bryan, medical sage, a past president of our state Association, Dr. M. Q. Ewing. We need to increase the attendance to our meetings. It is our duty and privilege to attend.

News and Comment

FAMILY PICNIC HELD HONORING DR. McMILLAN ON EIGHTIETH BIRTHDAY

Sunday afternoon, August 12, the home of Dr. and Mrs. M. M. McMillan in Guntown was the setting for a family reunion and picnic in celebration of Dr. McMillan's 80th birthday.

Beautiful arrangements of mixed garden flowers adorned the entire house.

Each family brought a basket supper which was spread on the lawn late in the afternoon and served picnic style with iced drinks. Many lovely gifts were on display from a table on the lawn that was centered with a low bowl of colorful summer flowers.

Those attending included Mrs. W. K. McMillan, Mr. and Mrs. Robert McMillan, Mr. and Mrs. Charlie McMillan and children, Emma Lou, Charlie, Walter, Mrs. Harold Barnett, Mrs. J. F. Milton, Jr., and daughter, Loula, and Mrs. Will Cunningham and son, Bill, of Booneville; Mr. and Mrs. Bobby McMillan and sons, Jimmy and Bill, of Baldwyn; Mr. and Mrs. Julian Patrick of Meridian and Dr. R. B. Caldwell of Baldwyn, honored guest and special friend of Dr. McMillan's.

During the afternoon many other friends of Dr. and Mrs. McMillan of Guntown and Tupelo called to offer best wishes and congratulations.

ANNOUNCEMENTS

The preliminary program of the Southeastern States Cancer Seminar will be held November 7 and 8, 1956, at the George Washington Hotel, Jacksonville, Florida.

Essayists include Dr. Everett D. Sugarbaker, Dr. Elliott Scarborough, Dr. Eugene P. Pendergrass, Dr. Alton Ochsner, Dr. Willard Allen, Dr. Alfred Gellhorn, Dr. George T. Pack, Dr. Michael D. Deddish, Dr. Robert D. Moreton, Dr. Richard B. Cattell, Dr. George Clinton Andrews, and others.

Management of Carcinoma of the Breast will be the topic for the first annual clinical symposium to be held November 9 and 10 at the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas. For the two-day session ten hours of credit will be granted by the AAGP.

CANADIAN DOCTOR, married, 26 years of age, desires position with another physician or group, doing general practice. Will also consider position of resident physician in hospital. Have Mississippi license. Please write John Erdhardt, M.D., 37 Earl St., Kitchener, Ontario, Canada.

DEATHS

DR. JAY GOULD GARDNER

Dr. J. Gould Gardner, prominent retired Marion County physician and founder of the county's first hospital, was buried August 14 in funeral services in Columbia.

Gardner, a 74-year-old native of Montreal, Canada, was active in professional and civic affairs for more than 30 years. He established a drive which led to the building of Gardner Stadium, the local high school football field.

Dr. Gardner, who died of a prolonged heart illness, is survived by his widow and one son, Jay G. Gardner, Jr., of Natchez.

DR. HAL GLENN JOHNSON

Services for Dr. Hal Glenn Johnson, 68, prominent Tunica County physician who died August 17 following a heart attack suffered at his home, were conducted at the Dundee Methodist Church with burial in Oakwood cemetery at Tunica.

A graduate of the University of Mississippi and Vanderbilt Medical School, Dr. Johnson had practiced for 44 years. He was a past president of the Tunica County Medical Society.

Survivors include his wife and a brother, John W. Johnson of Indianola.

DR. D. W. JONES

Dr. D. W. Jones, 716 Broad Street, a physician who had not missed a meeting of the State Medical Association in 40 years, died at his home following a long illness. He was 86 years old.

Widely known in this area, Dr. Jones, along with Dr. J. H. Johnson, established the Brookhaven Sanitarium.

A native of Claiborne County and a former resident of Brookhaven, Fernwood and Hermanville, Dr. Jones had lived in Jackson since 1916. He was a graduate of the University of Mississippi and Tulane University.

He was a surgeon for the Fernwood Lumber Company for five years and a general practitioner at Hermanville before moving to Brookhaven to build the sanitarium.

Since moving to Jackson in 1916 he had specialized in pediatrics. In 1950 he was awarded the medical 50-Year Club membership.

He joined the State Medical Association and served as president in 1910. He often said that since becoming president he had never missed a meeting up until 1950 when he retired from active practice.

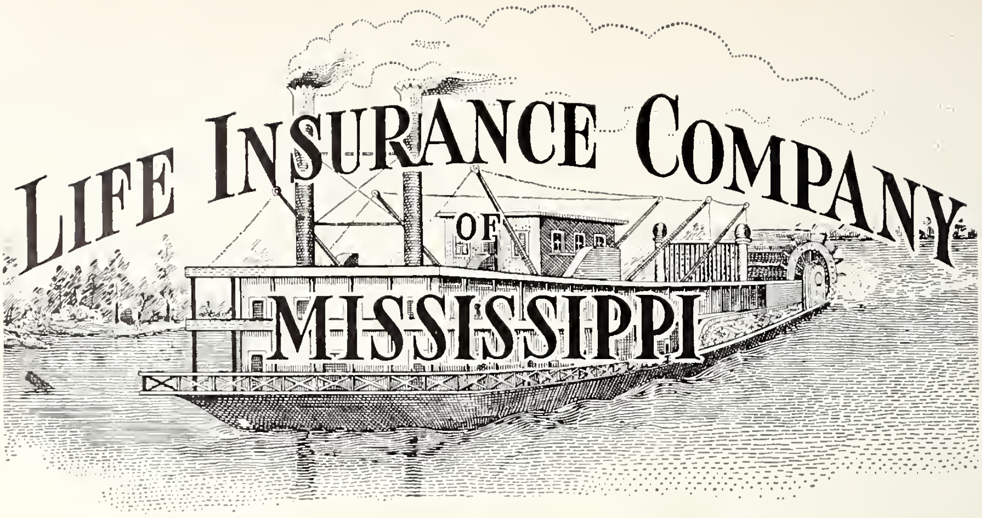
He had served as councilor for the State Medical Association and for the Southern Medical Association.

DR. H. N. HOLYFIELD

Services were held at the Brandon Methodist Church for Dr. H. N. Holyfield, 77, prominent owner and operator of the Brandon Hospital, who died in the hospital July 26 after a long illness.

A practicing physician in Brandon for the past 26 years, Dr. Holyfield was a member of the American Medical Association and a member and trustee of the Brandon Methodist Church.

His survivors include his wife, Mrs. Elton H. Holyfield of Brandon; three sons, W. G. Holyfield, L. G. Holyfield, both of Brandon, and H. N. Holyfield, Jr., of Sacramento, Calif.; six daughters, Mrs. Beatrice Burnham and Mrs. W. B. Pickering, both of Mendenhall, Mrs. H. P. Stockstill and Mrs. Harold Jones, both of Brandon, Mrs. Chester Burnham of Puckett, Mrs. C. Gibson of Coral Gables, Fla.; his mother, Mrs. N. K. Holyfield; two sisters, Mrs. G. R. Dent and Mrs. Nelia Jurhs, both of Sacramento, Calif.; 18 grandchildren and five great-grandchildren.



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Some Practical Considerations of Malformations of the Urinary Tract*

WILLIAM M. COPPRIDGE, M.D.†
Durham, N. C.

THE HIGHEST incidence of anomalous development occurs in the urogenital tract. It has been reported that from 10 to 12 per cent of all human beings are born with an anomaly or deformity of some portion of their genito-urinary systems. The complex embryological development of the urinary organs with their close association with the formation of the genital tracts in both sexes accounts for this high incidence of malformation. In urologic practice a very high proportion of patients seen with significant illness prove to show some congenital basis for their pathology.

These deformities may occur singly but are often multiple. A person with hypospadias of even slight degree is more likely to have malformation of the upper urinary tract than a normal individual. The anomaly may be of such nature as to produce death of the fetus or result fatally soon after birth of the child. On the other hand, patients with such deformities as horseshoe kidney may live long lives and die without the anomaly having been discovered.

Murphy, quoted by Campbell, reported after a study of over 130,000 death certificates in Philadelphia that the first four children born to a mother followed the normal proportion of malformations. Beginning with the fifth child a sharp rise occurred in the incidence ratio, and in the seventh child, was double that of any of the first four. Children born of mothers over forty years of age are three times as likely to be abnormal as those born of mothers under thirty. A long period of relative sterility preceded conception of the malformed child four times more often than when the child was normal. Defective children are born more often following a miscarriage, abortion, stillbirth or premature birth. Dietary factors, parental age difference, illegitimacy, placenta previa or rapid succession of pregnancies apparently played no significant part in the cases studied by Murphy. He summarizes the information which he states should be given prospective parents having one deformed child as follows, "the offspring presenting congenital malformations which are serious enough to warrant being recorded on death certificates are approximately twenty-four times as likely to occur in families possessing a congenitally deformed child as in the population at large."

It will not be within the province of this discussion to review the embryology pertaining to the development of the urogenital tract. Nor can we consider many of the large number of defects that can and do occur. It will suffice here to state that malformations may take the form of absence of the organ or part, their duplication or triplication, as well as errors producing variance of volume and form of parts. Added to these are the anomalies of location and rotation as well as those affecting the kidney pelvis and the blood vessels supplying the various structures.

It is a basic and well recognized fact that an anomalous organ is more prone to disease than a normal one. Since the urinary tract, from the renal collecting tubules down to the urethral meatus, is functionally a drainage system it is an important clinical corollary that errors in development tend to produce obstruction to the flow of the urine. The resultant stasis, in turn, predisposes to pathological processes the clinical signs of which we eventually recognize as pain, infection, stone, hematuria, retention and finally, in many cases, renal failure.

Urinary anomalies when not recognized frequently confuse the diagnosis when disease of the abdominal organs is suspected. Abdominal pain may be the only symptom produced by a malplaced or duplicated kidney. Infection with urinary symptoms may ensue much later and deter one from suspecting the renal tract pathology in the beginning. Campbell states that in persons with upper urinary tract anomalies from one-fourth to one-fifth are subjected to abdominal operations through mistaken diagnosis. In most cases this is a pardonable mistake because obviously every patient cannot be subjected to urological study and unless this is done, in many of the cases, it is impossible to distinguish between the pain produced by an anomalous ureter from that of appendicitis or ovarian disease. However, these mistakes may be avoided to a large extent if a careful urologic history is secured and followed by urographic studies in those in whom renal pathology may be suspected.

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*Presented at the sixty-seventh annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 14-17, 1956.

†Department of Urology, Watts Hospital, Durham, North Carolina.

Realizing that these errors of development vary to such an extent as to produce death in the newborn to the other extreme in which they may go unrecognized throughout a long lifetime, in order to be practical, one must focus attention on a few of the more common lesions that are amenable to some form of treatment. Much can be accomplished by the diagnosis and treatment of obstructive uropathies in children practically all of which are on a congenital basis. There are several signs and symptoms that should direct our suspicions to the existence of such lesions. They occur more frequently in boys than in girls. They commonly are the result of lesions in the deep urethra or at the bladder neck—in the form of obstructive veils of tissue commonly called valves—bands of tissue extending across the urethra, or of congenital stricture. These lesions are readily amenable to treatment and their early recognition may prevent serious loss of renal tissue or even death. It is well to remember that obstruction and retention precedes infection in these cases and one should not expect to find pyuria in the early stages. In fact, we have observed one boy who finally died in uremia from the effect of valves in the posterior urethra whose urine never became infected.

The early symptoms are the most important. I would list them in the following order: 1) distention of the bladder; 2) enuresis; 3) urinary difficulty—voiding with small stream or dribbling; 4)) very frequent voiding; 5) pain or irratibility referred to the bladder region. Strangely enough, pain may be slight or absent. Then the later symptoms that may or may not occur: 6) pyuria; 7) fever; 8) hematuria; 9) signs of renal failure—edema and anemia with azotemia and signs of impending uremia.

Treatment of these patients with relief of the obstruction often gives surprisingly good results even in cases of apparently severe renal damage.

Chronic or recurrent urinary infection in children commonly occurs in the absence of any congenital defect; nevertheless, these patients always warrant a urological survey.

In early adult life the most common anomalies encountered are those of duplication and malposition and the obstructions produced by abnormal blood vessels. Duplications may be bilateral or, more often, unilateral. They may produce no symptoms and be discovered only by routine examination. On the other hand they may produce urethral pain even when no apparent obstruction is found. These duplications vary in extent from the commonly seen bifid pelvis with one normal ureter, to complete separation of the pelves with separate ureters which may anastomose at any point in their course or may remain separated and open into the bladder through separate orifices. When complete duplication is present the upper segment is likely to be small and rudimentary with the lower approaching normalcy. Being rudimentary, it is the upper segment with its ureter that shows the wider variance from normal and is apt to be the offender in producing symptoms. Ureters from these segments occasionally open outside the bladder and discharge urine constantly on the surface or sometimes into the vagina. A case in point was a sixteen-year-old girl who had all of her life drained urine and was constantly wet. The anomalous ureter was discovered and because of disease in both segments a nephrectomy was performed.

Most of these patients complain of varying types of pain associated with bladder symptoms depending upon the existence, or degree, of infection.

Congenital malposition of the kidneys may or may not give rise to symptoms or to any significant disease but are much more likely to become infected or produce pain than normal kidneys. In embryonal life the kidneys are located in the pelvis with the convex surfaces pointing toward the midline. As development proceeds the organs ascend and rotate so that the convex border comes to face away from the spine. If this normal ascent does not occur we find the kidney lying at any level along the normal course of ascent—giving rise to what we know as renal ectopia. If rotation fails to take place we have what is known as the non-rotated kidney.

Sometimes the kidney in its ascent will cross the midline giving rise to crossed renal ectopia. The two kidneys may fuse and give rise to unilateral kidney.

Horseshoe kidney is a fused kidney composed of segments that remain attached to each other in early development. The two segments usually ascend but not to the normal extent and come to lie either in front of the spine or close to either side of it Usually neither segment shows complete rotation. Horseshoe kidney may be suspected in flat x-ray films of the abdomen when the renal shadows are seen to lie very close to the spine at a somewhat lower than normal level. Like all anomalous organs they are more susceptible to disease than normal ones. Here again their abnormal vascular pattern predisposes to ureteral obstruction with varying degrees of hydronephrosis. Many, however, never produce symptoms. Where there is obstruction or other pathology, surgery is indicated, directed toward severance of the isthmus that connects them and performance of whatever plastic procedure that is necessary to improve drainage.

Now for some consideration of congenital polycystic kidneys. The type of embryological error involved here is not clear and subject to divergent opinion. They are most often encountered in early adult life on to advanced age—in our experience mostly in the third and fourth decades. The disease is always bilateral but may differ widely in degree on the two sides. The diagnosis is made on pyelographic findings with varying degrees of renal enlargement, hematuria and gradual deterioration in function which may take place slowly. The well advanced case is detected without difficulty but those showing slight changes in the contour of the pelvis may be difficult or impossible to diagnose from x-ray study.

Since kidneys with any degree of polycystic disease may give rise to hematuria it is one condition that must always be suspected in cases of long standing or repeated attacks of hematuria. We have seen a number of cases in which the source of microscopic bleeding could not be found, in which we later found polycystic disease that was not suspected in the pyelograms. One should be guarded in the prognosis of these cases since persons with large bilateral polycystic kidneys are known to live for many years and die of other diseases. We have felt that when the disease is found in the younger group the prognosis is less favorable.

I would like to mention here a rarer type of anomaly but one that must be considered in young persons, those in the first and second decades, who show progressive renal failure without clear-cut evidence of nephritis. I refer to the condition known as renal hypoplasia. In these people the kidneys are congenitally small. There is simply not sufficient renal parenchyma to sustain the growing child or young adult. The condition is not to be confused with renal atrophy. We see atrophic kidneys resulting from chronic infection and renal fibrosis as well as in some types of vascular disease. The pyelographic findings are quite similar. The differentiation is made usually on the age of the patient and the lack of any history of chronic infection. The prognosis in renal hypoplasia is necessarily poor.

Probably the most common congenital anomaly involves the vascular supply to these organs. As has been stated, irregularity of pattern of blood supply is present in practically all anomalies. It is only when these abnormal vessels interfere with drainage and produce obstruction that pathology results. While these defects may occur at any point they are most common at the level of the kidney when the vessels entering the organ divide into several branches and enter the hilum in such positions as to compress or angulate the ureter as it leaves the pelvis. This is commonly known as uretero-pelvic obstruction.

Anomalous bands of tissue or congenital stricture at this level may produce the same pathology. All degrees of obstruction are encountered, from those producing practically no retention and giving no symptoms to those giving rise to giant hydronephrosis.

This type of anomaly is seen at all ages but in our experience is most commonly encountered in early adult life. It is remarkable that a marked obstruction producing extensive renal damage may exist for years without symptoms. Many of these cases remain uninfected with normal urinary findings. Unless the hydronephrosis is large enough to produce an abdominal mass its presence may remain unsuspected for years. When symptoms occur they are likely to be acute—in the form of flank pain simulating renal colic. The urine may show only a few red blood cells that add confusion to the differentiation with ureteral stone. There is another group often with much less obstruction and hydronephrosis that become infected early and lead to chronic urinary infection. These, I believe, most often are seen at a somewhat later age. It is well to remember that in common with all upper urinary tract anomalies the defect in these cases tends to be bilateral though fortunately not often to the same degree on each side.

Many of these kidneys when discovered early enough may be operated upon and the defect corrected. Often the offending vessel is too large to be severed because of the resulting loss of renal circulation but plastic operations may be performed, a portion of dilated pelvis removed and the incision so closed that dependent drainage will result. Many kidneys are saved by these procedures.

When vascular obstruction occurs at a lower level involving the lower ureter, hydroureter as well as hydronephrosis results. Such a case was a young woman with an anomaly of the uterine artery in whom the lower ureter was caught and obstruction resulted. This girl, a student nurse, exhibited no symptoms other than extreme hypertension and urological study was done for that reason. Following removal of the kidney and ureter the blood pressure returned to normal. However, within a year the hypertension recurred and the girl died from the effects of it. This is in line with a good many experiences we have had with what we thought to be unilateral renal disease producing hypertension

I have an additional case of a very rare condition, that of Mullerian duct cyst. We believe that this was the first case of its kind reported in this country. In the embryo, up until the sex of the individual is determined, there is present the Wolffian body that eventually has to do with development of the male sex organs and the Mullerian body from which the female organs will develop. After the sex is established one of these systems degenerates and only remnants of it are left in the adult. In the case of the male, only a small portion of the Mullerian duct remains, extending from a point in the deep urethra to the appendix testes. It seldom gives rise to pathology but cysts do form from it. It was a very large cyst, filling the pelvis of this 30-year-old man. It compressed the ureters to both sides of the pelvis. Moderate hydronephrosis resulted. The cyst was removed and the patient made a good recovery. It is just one of those rare conditions seldom encountered but interesting when they are found.

There are just a few points I would like to make in summary.

Congenital anomalies of the urinary tract are common—so common that their presence complicates the clinical and pathological picture in a very high percentage of urological cases.

They are often amenable to treatment and their presence should be suspected in all patients exhibiting urinary symptoms.

It is in infants, children, and those of early adult life that most of the serious defects are discovered. Early treatment may result in preservation of renal function and the saving of life.

*This paper was accompanied by 26 slides depicting the various types of malformations mentioned in the text.

If a man does not make new acquaintances as he advances through life, he will soon find himself alone. A man, sir, must keep his friendships in constant repair—Johnson

God grants liberty only to those who love it, and are always ready to guard and defend it. —Webster

Mother is the name for God in the lips and hearts of little children—Thackery

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The Experimental Use of Nylon Tubes as Aortic Substitutes*

WILLIAM O. BARNETT, M.D.†
Jackson, Miss.

THE INDICATIONS for resection and grafting of the aorta include aneurysm, thrombosis, coarctation and malignant involvement. Among the materials used as aortic substitutes are vein grafts, heterologous grafts, autologous grafts and homologous grafts. Vein grafts have proved unsatisfactory because of the great tendency toward dilatation when this vessel is subjected to the pressure of the arterial system. Heterologous grafts are unsatisfactory because of the tremendous inflammatory reaction stimulated by their implantation. Autologous grafts have worked very nicely, but unfortunately no expendable arteries of sufficient size to serve as aortic substitutes are found within the body. Homologous grafts are primarily responsible for recent progress in the field of aortic surgery. However, these materials are difficult to procure, time consuming to prepare and there is some evidence that calcium deposits accumulate along the intimal surface. Marked thinning of these graft walls has also been reported as late changes[1]. It is well known that arterial homografts do not survive as such. Only the elastic meda remains after a period of time to serve as a scaffold around which the new vessel is constructed. If an inert prosthesis could be satisfactorily utilized as a frame to support the formation of a new vessel, then much progress in this field would have been accomplished.

An effective aortic substitute must be readily available, easily fashioned into tubes of various sizes and shapes and easily sterilized. It also must be feasible to anastomose the tube to the vessel by ordinary suture methods. It is mandatory that this substance be non-reactive and essentially impervious to blood. It must be pliable as rigid arterial substitutes have, for the most part, been unsuccessful. It is also desirable that the walls of this tube be incorporated within a sheath of tissue layed down by the host. The formation and maintenance of a viable sheet of lining cells inside the graft necessitates that this material be porous to facilitate the ingrowth of granulation tissue through its walls.

MATERIALS AND METHODS

Cylindrical tubes measuring .8 cm. in diameter and 5 cm. in length were constructed from nylon filter fabric. An outline was traced onto the cloth from a pattern of the desired dimensions. It was then folded over and sewed down the side. The ends were of slightly greater diameter so that folding back was facilitated. This resulted in a smooth non-frayed cuff insuring a more secure anastomosis (Fig. 1). It is necessary that these tubes be washed very thoroughly so that all chemicals incident to the process of manufacture are removed. They were sterilized along with the suture material in the autoclave. Mongrel dogs weighing from 35 to 40 pounds served as hosts for these aortic "grafts." After anesthesia was instituted with intravenous sodium pentobarbital, a 5 cm. segment of the abdominal aorta was resected transperitoneally. Anastomosis of the graft to the host aorta was carried out by the continuous over and over suture technique using small round needles and 5-0 arterial silk.

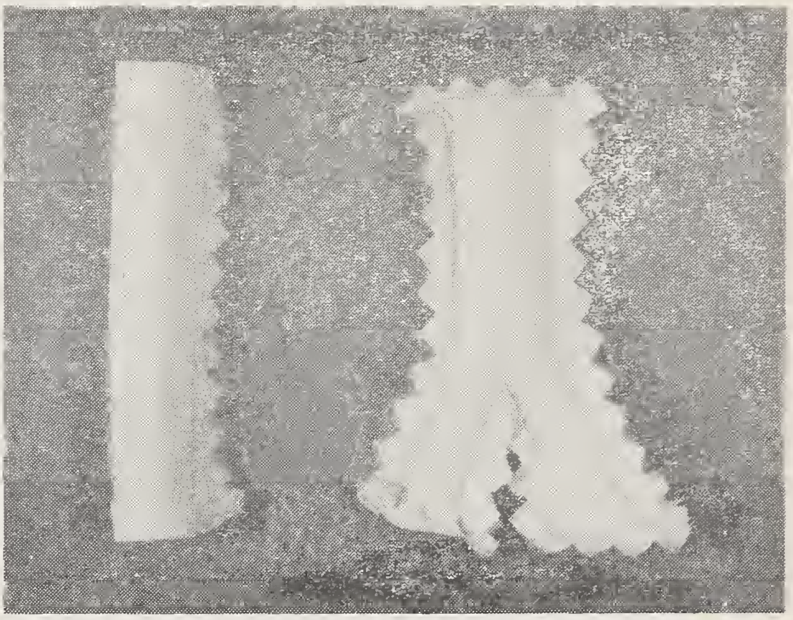

Fig. 1. Nylon filter fabric arterial prosthesis.

Hemorrhage from the suture line lasted no longer than five minutes and was very easily controlled by pressure (Fig. 2). The posterior peritoneum was very carefully approximated over the grafts so that the cloth was completely surrounded by viable tissue at all points. No anticoagulants were used. This procedure was carried out in a total of fifteen dogs.

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*Presented before the Central Medical Society, Jackson, Miss., May 1, 1956.

†From the Department of Surgery, University of Mississippi Medical Center, Jackson, Miss.

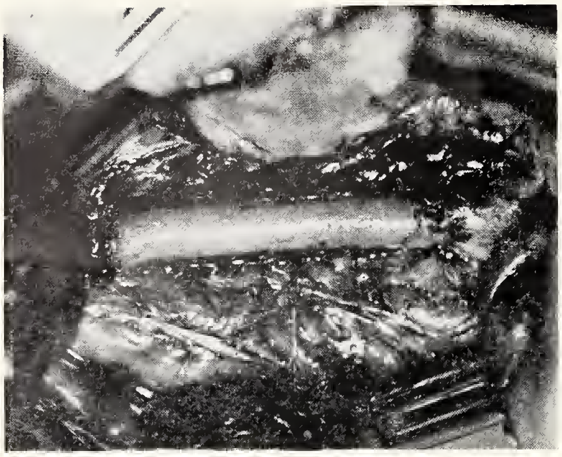

Fig. 2. Functioning nylon "graft."

RESULTS

The first mortality occurred after the elapse of 24 hours because of disruption of the proximal suture line. An excessive amount of aorta was resected so that the graft had to be inserted under a great deal of tension. It was realized at the time that disruption was very likely to occur. The second mortality occurred four weeks after operation and was a result of distemper. Postmortem examination revealed the graft to be intact and very satisfactory in appearance. Upon opening the graft it was evident that the suture line had been completely covered by endothelium from the host. Microscopic examination of this anastomotic site demonstrated a continuous sheet of endothelial-like tissue extending down well below the suture line. A fibrous sheet on the exterior of the "graft" was also evident on microscopic examination. The remaining thirteen dogs in this series lived and were normal in appearance and activity (Table 1)

TABLE I.
EXPERIENCE WITH NYLON ARTERIAL SUBSTITUTES

Number of Animal	*Length of Graft*	*Diameter of Graft*	*Type Suture*	*Period of Observation (Days)*	*Thrombosis*	*Result*
1	5 cm	1 cm	0 & 0*	425	0	Good
2	5 cm	.8 cm	0 & 0	421	0	Good
3	5 cm	.8 cm	0 & 0	245	0	Sacrificed
4	5 cm	.8 cm	0 & 0	240	0	Good
5	5 cm	.8 cm	0 & 0	30	0	Died**
6	5 cm	.8 cm	0 & 0	3	0	Died***
7	5 cm	.8 cm	0 & 0	210	0	Good
8	4 cm	.8 cm	Combined	205	0	Good
9	5 cm	.8 cm	Combined	35	0	Good
10	5 cm	.8 cm	0 & 0	30	0	Good
11	5 cm	.8 cm	0 & 0	25	0	Good
12	5 cm	.8 cm	0 & 0	20	0	Good
13	5 cm	.8 cm	0 & 0	1	0	Sacrificed
14	5 cm	.8 cm	0 & 0	14	0	Good
15	5 cm	.8 cm	0 & 0	7	0	Good

*Over & Over
**Distemper
***Disruption of Suture Line

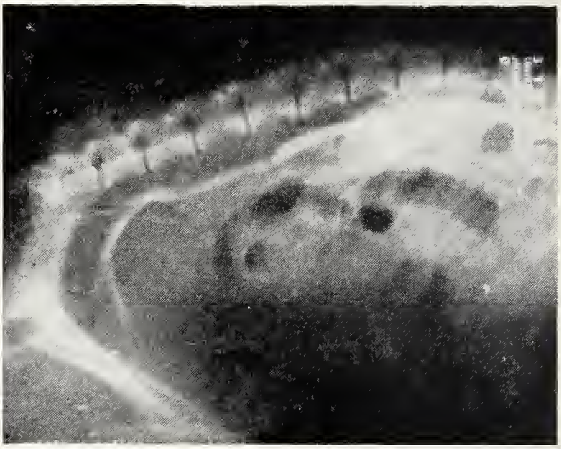

Fig. 3. Aortogram showing nylon "graft" six months after insertion.

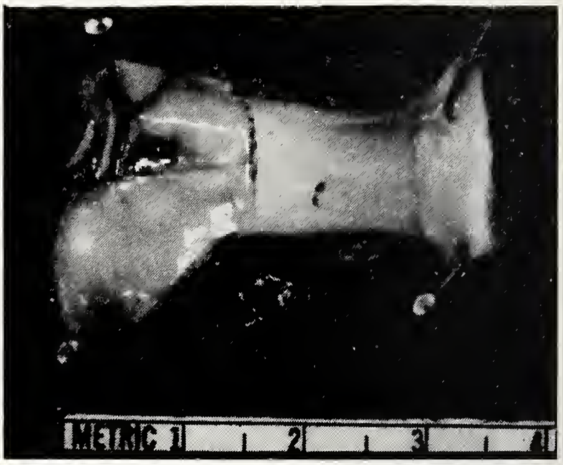

Fig. 4. Inner surface of nylon "graft" after six months.

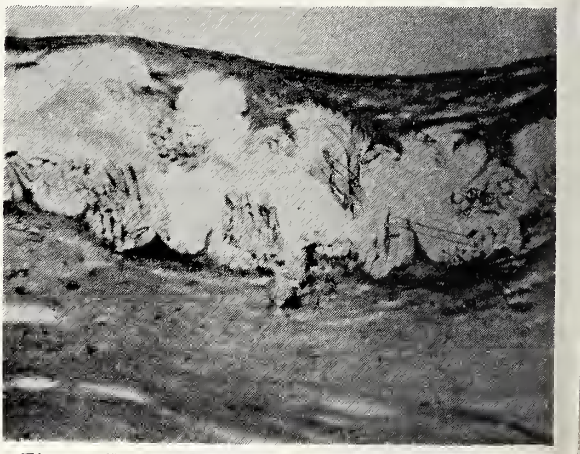

Fig. 5. Photomicrograph showing endothelial-like cells lining arterial prosthesis after six months.

Bounding femoral pulse was palpated without difficulty. One of the six-month survivors was extensively studied in preparation for sacrifice. An aortogram outlined the graft very nicely and demonstrated its patency (Fig. 3).

In-vivo examination revealed the external surface to be completely surrounded by a continuous sheet of tissue resembling endothelium very closely (Fig. 5). The nylon cloth was intact below this layer and the external sheet of fibrous tissue was again demonstrated.

In conclusion, it may be stated that immediate and intermediate results following the experimental implantation of nylon filter fabric aortic substitutes have been satisfactory. Long-term studies will be carried out on the survivors so that the ultimate fate of this can be determined.

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Ruptured Aneurysm of Abdominal Aorta: Successful Resection and Homografting Five Days After Initial Hemorrhage

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The resection of aneurysmal and occlusive disease of the aorta has become almost routine in most surgical centers, and we have previously reported experiences in this journal[1],[2]. The purpose of the present communication is to record a case of more than usual interest.

CASE REPORT

HISTORY. S. S., a 62-year-old Negro man, was well until 6 p.m. 7-14-56 when he was suddenly seized with a severe pain in the left lower abdomen as he sprang backward while tending cattle. The pain quickly moved downward into the left groin and testicle, and he was prostrated by the agony and an associated weakness. During the night he felt nauseated and vomited, but there were no other prominent symptoms. The next monring he was transported to the University Hospital.

PHYSICAL EXAMINATION. On admission to the emergency department the patient was in shock (B.P. 70-50) and had an hematocrit of 26. The white cell count and urinalysis were not remarkable. Following 500 cc. of dextran the blood pressure was 105/50. All arm and leg pulses were palpable.

The salient additional findings were limited to the abdomen. Rather marked obesity rendered palpation somewhat unsatisfactory, but there was much tenderness in the left lower quadrant and at least one examiner thought at the time that he felt a mass. However, the prominent left abdominal pain radiating to the groin and left testicle so strongly suggested left renal or ureteral calculus that the Urology Service undertook to rule out this diagnosis, with which at least two general surgical consultants concurred. Sickling was excluded as a cause of the anemia and a neoplasm was considered a possible etiology.

COURSE IN HOSPITAL. No hospital bed was available and the patient had to be cared for and his studies conducted on an emergency room basis. Blood pressure measurements were not taken at as frequent intervals as one might have desired, in retrospect, and an intake-output record was not maintained—for the patient was not judged to be in a critical condition. As we shall see, however, preoperative shock and dehydration probably contributed heavily to the development postoperatively of lower nephron nephrosis with oliguria and azotemia.

At cystoscopy the left kidney pelvis drained 18 cc. of amber urine, and cystogram and barium enema revealed a large retroperitoneal mass displacing the bladder and rectosigmoid colon. Sigmoidoscopic examination revealed no intrinsic lesion in the lower large bowel.

By 7-18-56 the patient seemed improved, and the urethral catheter was removed, though the anemia remained unexplained. On 7-19-56, however, he became irrational and the hematocrit was found to be 19. We were among several consultants requested to examine the patient late on the afternoon of 7-19-56 and we, with others, considered that the most likely diagnosis was that of ruptured aneurysm of the abdominal aorta. As an aortogram was being prepared for the patient became rapidly worse and, abandoning this study, he was rushed immediately to the operating room.

OPERATION. (9:00 p.m.). Under general anesthesia, accompanied by the rapid infusion of blood, the abdomen was opened through a liberal incision extending from the xyphoid process to the symphysis pubis (and eventually down each inguinal area). No sooner had the peritoneum been reached than there was evidence of extraperitoneal hemorrhage and sanguinous intraperitoneal fluid. From the intraperitoneal exposure it was apparent that there was a massive left retroperitoneal hematoma which extended from the inguinal ligament to the diaphragm, under marked pressure. The pulsatile mass palpable preoperatively was prominent in the approximate location of the terminal aorta and in the pelvis. Recent and continuing hemorrhage, as well as old clot, had infiltrated all tissues and had obscured landmarks. Gradually the aorta was exposed above the aneurysm but below the renal arteries. A clamp was then placed to occlude the aorta so as to diminish continuing hemorrhage.

Attention was then turned to controlling the iliac arteries distal to the aneurysm. When it was found that these vessels were involved in the aneurysmal process, the lower end of the abdominal incision was extended in a Y-fashion to expose the femoral arteries on either side. These vessels were then followed in a proximal direction until the external iliac arteries could be clamped at a point distal to the aneurysmal mass. At this time the proximal aorta and both external iliacs were occluded and the aneurysm attacked directly. The overlying peritoneum was now incised and the hematoma scooped out as best could be done. Fresh hemorrhage was minimized by firm pressure over the dome of the mass. With care to avoid injuring the vena cava and the ureters (which were not readily identified due to the massive infiltration of the retroperitoneal tissues with hemorrhage) the aneurysm was rapidly dissected free after division of the aorta above it. Some hemorrhage continued until the back-bleeding from the internal iliacs could be stopped by exposure and ligation of these vessels, both of which participated in the aneurysmal dilatation that began in the terminal aorta. The main aneurysm arose from the right common iliac and was approximately the size of a large grapefruit. It had perforated on its ventral surface, from which bleeding was continuing at a steady but not brisk rate. As soon as the aneurysm had been excised an arterial homograft was sutured (0000 arterial silk) in place, extending from the distal aorta to each external iliac artery. The abdomen was then closed with chromic catgut in the peritoneum and interrupted silk in the fascia and skin.

The operation had lasted almost five hours and fourteen pints of blood had been used. Nevertheless, the patient's condition was considered fair. There were good foot pulses on the right and weak pulses on the left. Actually, there was considerable edema of the entire left leg and the palpation of foot pulses was difficult. The swelling was undoubtedly the result of pressure on the left iliac vein by the retroperitoneal hematoma, leading to thrombosis. When the swelling subsided many days later the left foot pulses were easily palpable.

POSTOPERATIVE COURSE. During the first 72 hours the blood pressure was extremely unstable and was intermittently at shock levels for brief periods. However, digitalization, nasal oxygen, and numerous other supportive measures resulted in a relatively stable circulatory system by the fourth day.

The major postoperative difficulty was oliguria with azotemia which resulted in virtual coma by the eighth postoperative day (NPN 196). Yet, eventually this too responded to heroic therapy, and he was discharged on 8-11-56 (the 23rd postoperative day) in fair condition.

He was seen in follow-up clinic during the first week in September. At this time all pulses were present in both lower extremities, his appetite was good, the sensorium was normal, and he was walking. Subsequent vocal reports have indicated steadily continued rehabilitation.

SUMMARY AND CONCLUSIONS

1. A spectacular case is reported in which an abdominal aortic aneurysm was successfully resected with homografting five days after the initial hemorrhage. The patient was rehabilitated without loss of even a digit.
2. Postoperative oliguria and azotemia, doubtless due to lower nephron nephrosis following periods of oligemic shock, was successfully managed without the use of an artificial kidney.
3. While perhaps disconcerting when first encountered, a ruptured aneurysm presents only one immediate problem: the restoration of an adequate circulating blood volume by controlling hemorrhage and transfusing the patient rapidly. Otherwise the technical problems are identical with those to be employed in treating the unruptured aneurysm.
4. It is concluded that a ruptured aneurysm presents the surgeon with one of the most clear-cut indications for surgery possible. There is everything to gain, for without operation the outcome is fatal.

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All that we are is the result of what we have thought; it is founded on our thoughts, it is made up of our thoughts. If a man speaks or acts with a pure thought, happiness follows him, like a shadow that never leaves him—Buddha

A Good Book is the precious lifeblood of a master spirit embalmed and treasured up on purpose to a life beyond life—Milton

Skin Infections as a Source of Acute Nephritis in Children*

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ACUTE GLOMERULAR nephritis (acute post-infectious nephritis, acute hemorrhagic nephritis) still occurs frequently during childhood, sporadically and in epidemics, despite the widespread treatment of acute infections with antibiotics. At a recent conference on handicapped children in Louisiana, the state chairman of the American Academy on Pediatrics estimated that more than 1400 cases of acute nephritis occur in this state annually[1]. Twenty-one deaths from this disease were reported in Louisiana for 1954.

Observation of the considerable prevalence of skin lesions on children admitted with nephritis to the pediatric service of Confederate Memorial Hospital in Shreveport led to this study of the comparative incidence of skin and respiratory infections antecedent to acute nephritis. Most texts mention the skin as the occasional site of antecedent streptococcic infection, but give no indication of the relative frequency, especially in the southern United States.

Charts were studied of all children through 12 years of age who were treated in Confederate Memorial Hospital for this disease during the period 1950-1955, eliminating nephrosis, pyelonephritis and patients with questionable diagnoses. For comparison we studied the records of children seen with nephritis in private practice at the Children's Clinic, in the same city, covering a longer period in order to secure a larger comparative series.

INCIDENCE OF ANTECEDENT INFECTIONS

There were 172 cases of nephritis in the hospital series from a total of 8898 medical pediatric admissions for the six-year period. There were 60 from the private practice series. Of the 172 children in the hospital series (Table I) 62 (36.04%) had only skin infections prior to the nephritis, 63 (36.6%) had respiratory infections alone, 25 (14.5%) had histories or findings indicating both skin and respiratory infections, and 22 (12.78%) had no definite history of infection. If we combine the totals of 62 who had skin infections alone and 25 who had both skin and respiratory infections, we find that 87, or one-half, of these children presented infections of the skin immediately prior to or concurrent with the nephritis. In the private practice series only six of the 60 nephritic patients had antecedent skin infections (Table II), an incidence of 10 per cent, whereas 50 (83.3%) were preceded by respiratory infections. One child had no recognizable infection, two infants had congenital syphilis and heavy metal ingestion occurred in one.

TABLE I. INFECTIONS ANTECEDENT TO ACUTE NEPHRITIS, CONFEDERATE MEMORIAL MEDICAL CENTER, 1950-1955

Total Cases of Nephritis, Pediatric	172	(100 %)
Antecedent Skin Infections, alone	62	(36.04%)
Antecedent Respiratory Infections, alone	63	(36.63%)
Both Skin and Respiratory Infections	25	(14.53%)
Total Skin Infections	87	(50.58%)
No Antecedent Infection	22	(12.78%)

TABLE II. INFECTIONS ANTECEDENT TO ACUTE NEPHRITIS, PRIVATE PRACTICE, CHILDREN'S CLINIC, 1931-1955

Total Cases of Nephritis, Pediatric	60	(100 %)
Antecedent Skin Infections	6	(10 %)
Antecedent Respiratory Infections	50	(83.3 %)
Antecedent Congenital Syphilis	2	
Antecedent Metal Poisoning	1	
No Antecedent Infection	1	

TABLE III. SKIN INFECTIONS ANTECEDENT TO NEPHRITIS

Impetigo Contagiosa, Pyoderma, Ecthyma	67
Infected Varicella	8
Infected Eczema, Dermatitis	3
Infected Lacerations	2
Infected Scalp Tenia	1
Infected Smallpox Vaccination	1
Infected Burn	1
Cellulitis	1
Furunculosis	3
Total	87

Impetigo contagiosa, pyoderma and ecthyma accounted for the majority of the skin infections (Table III), 67 of the 87 in the hospital series. These varied from a few lesions on the extremities to extensive involvement of the entire body; occasionally they were acute but often there were numerous old crusted lesions, preponderantly on the legs. Cultures were not taken routinely, but in three recent instances typical impetiginous lesions yielded beta-hemolytic streptococci. In other

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TABLE IV. RACE AND SEX INCIDENCE, DEATHS AND HOSPITAL STAY

Race-Sex	*Conf. Mem. Series*		*Chil. Clinic Series*	
	Skin Infection	Other	Skin Infection	Other
White Male	3	4	5	31
White Female	5	7	1	21
Negro Male	50	44	0	1
Negro Female	29	30	0	1
Deaths	1	1	0	1
Hosp. Stay, Days	19.4	24.1		

instances hemolytic staphylococci were cultured. One child had a deeper cellulitis, three had furunculosis, and eight presented infected varicella (chickenpox) lesions. The remainder consisted of secondarily infected eczema and dermatitis, lacerations, tenia of the scalp, burn and smallpox vaccination. In the private practice series, four had impetigo and one each had scalp infection and ecthyma with inguinal adenitis.

AGE, SEX AND RACIAL FACTORS

In the hospital series, the average age (Fig. 1) at which nephritis occurred with antecedent skin infections was 5.2 years; 70 per cent of these children were one to six years of age and 30 per cent were seven to twelve years old. The patients without skin infections averaged 6.3 years of age and the incidence was equally divided between the 1-6 and 7-12 year groups. In the private practice series (Fig. 2), the ages averaged 4.8 years, with 75 per cent occurring in the first six years, but this may be influenced by the relatively larger number of young children who are under care of the pediatrician in practice.

There was a considerable difference, understandably, in the race and sex incidence in the two series under review. (Table IV). The hospital series of 172 children comprised seven white males, 12 white females, 94 Negro males and 59 Negro females (11 per cent white, 89 per cent Negro). The 87 cases with skin infections included three white males, five white females, 50 Negro males and 29 Negro females (9.2 per cent white, 90.8 per cent Negro). The prevalence of skin infections in the Negro male with nephritis (50 of 94, or 53.2 per cent) is noticeable. The private practice series was composed of 36 white males, 22 white females, 1 Negro male and 1 Negro female. Five white males and one white female formed the group of private patients who had antecedent skin infections.

SEASONAL OCCURRENCE

For the six-year period reviewed at Confederate Memorial Hospital, it is instructive to note (Fig. 3) that 104 of the 172 cases of nephritis (60.4%) occurred during the summer and early fall seasons, May through October; 58 (55.7%) had antecedent skin infections, which is not surprising since pyogenic skin infections of all kinds are more prevalent during this warmer season. However, it is surprising to discover that 46 of the 85 children (54.1%) who had nephritis without skin infections developed the disease during these warmer months. In the private practice series, all six children who had skin lesions developed nephritis during the months of June through October. The remaining 54 occurred more frequently during the colder season, although there is a year-round distribution (Fig. 4). Seven of the eight cases of infected varicella developed nephritis in February and March. accounting for half of the antecedent skin infections which occurred in these months.

OTHER CLINICAL FEATURES

For a time we had the clinical impression that nephritis which was preceded by skin infection was more severe and more likely to result in prolonged convalescence than the disease which followed respiratory infections. Nothing in the present series supports this impression; the length of hospital stay averaged 19.4 days for the skin infection group and 24 days for the others; hypertension, cerebral or cardiac complications and other clinical features were similar for the two groups and one death occurred in each. One of these was a Negro male of 10 years with a large pyogenic infection on the left leg, who expired a few hours after admission to the hospital. The second, a Negro female of four years, with the history of sore throat, "cold" and cough two weeks prior to admission, died of cardiac failure 12 hours after entry. One death occurred, of subacute nephritis, in the private series.

Eighty-nine children of the hospital series were followed in clinic for intervals of one month to two years and apparently were completely recovered.

The respiratory and oral infections in the two series included "colds," pharyngitis, nasopharyngitis, tonsillitis, sinusitis, otitis media, cervical adenitis, pneumonia, scarlatina, measles, acute gingivostomatitis and gingival abscess.

DISCUSSION

It is evident that, under certain conditions, the body surface—skin and scalp—must be considered a major portal of streptococcic invasion, sometimes equal in significance to the mucus membranes of the upper respiratory and oral surfaces. Institutional and community epidemics of virulent streptococcal infection may often involve the skin; this is prone to occur if there are breaks in skin continuity, as with skin rashes, bites and lacerations.

In warmer climates where, during more than half of the year, clothing is scant and numerous skin breaks occur from scratches, cuts, insect bites, heat rashes and other types of dermatitis, the stage is set for invasion by virulent, nephritogenic streptococci. Our two series indicate that this occurs more often in low income groups and that Negro boys are especially susceptible. Children of ages two through six years experience the greatest incidence of nephritis associated with skin invasion, peaking at five years and diminishing rapidly after six years of age, whereas respiratory invasion of nephritogenic streptococci continues at a more even rate into later childhood.

It also appears that acute nephritis among children, in this part of the United States, is a year-round disease, with peaks of antecedent skin invasion during the summer and early fall months, and of respiratory infection during the winter and spring. Skin invasion in the hospital series shows a minor peak of incidence during February and March from infected varicella.

Studies of the natural history of streptococcic infection during infancy and childhood indicate variations which apparently depend on altered tissue and antibody response, possibly influenced to some degree by tissue maturation. Powers and his associates[2] use the term streptococcosis to include the entire sequence of streptococcic infection and human response, describing three types of reaction: initial infection in infants and young children, characterized by a smoldering, protracted course with low fever, suppurative complications and the absence of skin rash; a mid-childhood type with acute onset, high fever, limited course, less frequent suppuration and frequent scarlatina form of skin rash; and an adult type, occurring also in later childhood, which is acute and limited in duration, tending to be localized and without suppuration or skin rash. Rheumatic fever is a sequel of the latter two types; nephritis is more frequent with the second type after development of tissue reactivity, varying in incidence depending on the infecting types of organism[3].

Rantz, Maroney and Di Caprio[4] confirmed this natural course in a serial study of infants from birth through eight years of age, combined with observation of patients seen with streptococcic infection in the pediatric out-patient clinics of Stanford University Hospitals. In the first four years of life, indolent streptococcic infections were characterized by early rhinorrhea, frequent suppurative otitis media and adenitis, and pyoderma in 23.6 per cent of cases. During the second four years there was a sharp reduction in otitis media, increasing frequency of acute sore throat and tonsillitis, and the development of scarlatina form rashes. Pyoderma was present in 27 per cent and evidences of rheumatic fever or abnormal ECK occurred. A correlation was established between the nature of the clinical illness and the type of antistreptolysin O response; it is interesting to note that those children of any age who had streptococcic pyoderma were more likely to demonstrate the Pattern III response which consisted of vigorous and well-sustained formation of antibody.

The report of an epidemic of nephritis at Red Lake, Minnesota[5], has significance in relation to our study. Sixty-three cases of acute glomerular nephritis, 96 per cent of which were in children one to eight years of age, occurred between July and October of 1953 on an Indian reservation, following two cases of scarlet fever the first in five years. Eventually 24 cases of scarlet fever developed, also largely in children. Beta-hemolytic streptococci were isolated from throat cultures in 22.4 per cent of 216 individuals in the community and from 53.8 per cent of pyodermatous skin lesions on 26 individuals, including 12 with nephritis. Pyoderma was widespread among pre-school and school age children and was found on the skin of 80 per cent of nephritis patients, whose average age was about four years. The skin lesions were described as unique, with round, raised, pale red areas, 5 to 7 mm. in diameter, distributed over the lower trunk and legs. In the center of each a pinhead-sized vesicle developed, ruptured, and formed a thin flat crust over the vesicular area. Rapid clearing of throat cultures and skin lesions, with cessation of nephritis, followed mass prophylaxis by single injections of benzathine penicillin, 600,000 units to children less than 15 years of age and 1,200.000 units to older individuals.

Rammelkamp and his associates[3],[6] attribute the difference in the attack rates of nephritis and rheumatic fever, following streptococcic infection, to variations in the serologic type of the offending organism. The attack rate of rheumatic fever following untreated type A streptococcic infection is approximately three per cent regardless of serologic type. The recorded attack rate of nephritis varies from less than one-tenth of one per cent (0.1%) to 13 per cent, apparently due to the fact that different serological types of group A streptococci vary in their nephritogenic capacity. These authors state[3] that 12 outbreaks of nephritis have been studied in this country in recent years, and, with two exceptions, Type 12 streptococci have been implicated. Type 4 has been related to sporadic cases in the United States and to an epidemic of nephritis in Hawaii. The Red Lake, Minnesota, organism could not be typed and tentatively[7] has been established as a new strain, C-300. There is some evidence that Type 25 may also be associated with nephritis[3] in the United States. In England[8], two groups of patients with typical acute nephritis yielded organisms 90 per cent of which were Type 12.

Rammelkamp[9] raises the question whether the skin infection with streptococci is concomitant to respiratory tract infection or whether the skin infection itself is an important factor in the genesis of nephritis. He tested the hypothesis, that strains of Group A streptococci which produce nephritis may also show an unusual avidity to infect the skin, by infecting hamsters subcutaneously with several types of streptococci obtained from different patients. Most strains from patients with nephritis produced a severe spreading infection of the skin and subcutaneous tissues, whereas such infections were produced only occasionally by strains from patients with respiratory streptococcic infections. Although our hospital series is certainly suggestive of the significance of skin infections, alone or in combination with respiratory disease, in the production of nephritis, the question should be investigated further by more complete cultural study of nephritic patients with skin lesions.

PROPHYLAXIS OF NEPHRITIS

Prophylaxis of nephritis depends on prevention of initial streptococcic infections and immediate effective treatment when it does occur, especially in the susceptible ages of childhood. Recent figures[10] show a three- to eight-fold decrease in streptococcic disease in a number of major cities of the United States during the past decade, undoubtedly the result of widespread antibiotic usage. It is still estimated that two to six per cent of the normal child population harbors pathogenic streptococci in the throat and that three to 18 per cent of respiratory disease is due to streptococcic infection. Our hospital series and the quoted studies from California and Minnesota alert us to the fact that virulent streptococci are also responsible for skin infections from which renal and other complications may result.

Breaks in the integrity of the skin by rashes, eczema, abrasions and insect bites should be regarded as potential sites of streptococcic invasion; this is especially important if the child is in contact with streptococcic disease. The infant and small child with eczema should be guarded against such contact, just as we guard him against smallpox vaccination. The child who has widespread varicella lesions might best be protected by antibiotic administration; we have seen several children with scarlet fever from infected varicella, in addition to the nephritis listed in our series. Severe or widespread impetigo might best be treated by internal antibiotic therapy rather than by local applications.

Contacts of individuals with nephritis, especially family contacts, should have throat cultures and, if skin lesions exist, cultures from these or prophylactic therapy on suspicion. All contacts who have positive streptococcic cultures should have prophylactic treatment. Several reports[5],[10],[11] have confirmed the efficacy of a single injection of benzathine penicillin G in the dosage of 600,000 units for children and 1,200,000 units for adults as given in the Red Lake epidemic. It seems reasonable to protect the child who has nephritis from added streptococcic infection until the nephritis is completely clear, which took one to seven months in our series. The individual with subacute or chronic nephritis should also be protected from streptococcic infection. Fortunately, the child who recovers from acute nephritis, as happens in 90 per cent or more of instances, is not threatened with recrudescence by subsequent streptococcic infection. as is the rheumatic child, hence long-term antistreptococcic prophylaxis is not indicated[9].

CONCLUSIONS

1. Streptococcic skin infections are hazardous as sources of acute nephritis in children, especially between the ages of two and six years.
2. These infections are more prevalent during the warmer months, especially in low income groups and in boys.
3. Skin or scalp breaks enhance the possibility of streptococcic invasion.
4. Nephritis is a year-round disease in this part of the country.
5. The incidence of nephritis after streptococcic infection varies with the type of organism, occurring chiefly with Type 12 and 4 infections, sometimes in epidemic outbreaks.
6. Suggestions for prophylaxis are offered.

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Juvenile Melanoma*

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MY REASONS for presenting this paper are:

1. To arouse more interest in a relatively recently recognized condition that apparently carries a potentially serious prognosis.
2. What is the final destiny of lesions of juvenile melanoma not diagnosed in childhood?
3. To arouse interest in clinical pre-biopsy, presurgical diagnosis and to call attention to the lack of a single pathognomonic sign clinically.
4. With this condition not confined strictly to childhood can the pathologist recognize the condition in order to prevent unnecessary surgery?
5. To call your attention to a short concise and understandable classification of all nevi.

With regard to the first statement, as far as I have been able to determine, the term juvenile melanoma was first used by Sophie Spitz only eight years ago. It is as you see a rarely recent description of a condition which I am certain is as old as man. Her monograph was printed in the *American Journal of Pathology*, vol. 24, pages 591-609, 1948, and is worthwhile reading. After many years of study enough evidence was submitted by her in this monograph to show that although some lesions in childhood looked like malignant melanomas histologically, they did not act like malignant melanomas clinically. She called these lesions "juvenile melanoma."

With regard to the second statement or question, what is the final destiny of lesions of juvenile melanoma not diagnosed and removed before puberty? Discussing this point, Dr. Arthur C. Allen states in a series of 362 melano-carcinomas in adults there were 14 (3.9%) in which they seemed to arise from juvenile melanoma, the latter really being variants of compound nevi. The remainder of malignant melanomas (89.2%) were judged to have been superimposed on junctional nevi except for a few malignant blue nevi. In other words in approximately one of every 10 malignant melanomas the antecedent lesion was a compound nevus or a juvenile melanoma. Doctor Allen's book, *The Skin*, was published in 1954. As an axiom to this it would appear that if all juvenile melanomas were removed before puberty when the lesions look suspicious but do not act that way, when simple complete removal or destruction suffices for a complete cure of the lesion a certain percentage of individuals would be saved from malignant melanoma without a great deal of surgery.

The third statement, to arouse in clinical prebiopsy, pre-surgical diagnosis and to call attention to the lack of a single pathognomonic sign clinically. With regard to the above the clinical appearance varies, but the lesions are:

1. Usually under 1 cm. in diameter.
2. Verrucous with irregular margins.
3. Elevated.
4. Pink to red-brown to black in color.
5. Not hairy.
6. Usually gradual increase in size (but there may be rapid growth).

Fourth, with this condition not confined strictly to childhood can the pathologist recognize the condition in order to prevent unnecessary surgery? The oldest patient reported to have juvenile melanoma as far as I know is found in *The Skin* which is A. C. Allen's book. This patient was 42 years of age. If a diagnosis of juvenile melanoma can be made correctly, unnecessary surgery could be prevented. Since metastasis from histologically diagnosed juvenile melanomas occur only rarely, conservative surgery rather than radical surgery usually indicated for adult melanomas seems justified. The histological features as set out by Sophie Spitz and Arthur C. Allen are definite:

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*Presented before the Section on Pediatrics at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

1. Large cells with eosinophilic cytoplasm and large nuclei with prominent nucleoli.
2. Rare to occasional mitotic figure.
3. Tend to lack pigment as a group.
4. Edema and telangiectasis in subepidermal zone.
5. Giant cells, very large with one or more nuclei found in one-half of the cases. *Parenthetically it is to be noted that in this one feature alone are some of the lesions different from malignant melanomas in adults.*

Fifth, to call your attention to a short concise and understandable classification of all nevi.

A. Benign nevi.
  1. Junction nevi.
  2. Intradermal nevi.
  3. Compound nevi.
  4. Juvenile melanoma.
  5. Blue nevus of Jadassohn-Tieche.

B. Malignant.
  1. Melanocarcinoma (junctional or compound nevi).
    a. Superficial
    b. Deep
  2. Malignant blue nevus.

In this classification the common ordinary mole with hair in it is the second one in the classification under benign nevi, namely intradermal. This is a simple classification for moles which anyone who cares to can learn. I should like to encourage everyone to acquaint himself with this histological classification. It is easy to remember and the lesions almost make the diagnosis for you when you look at them. The compound nevus has components of both the intradermal nevus and the junctional nevus. The juvenile melanoma, we have already described. The benign blue nevus of Jadassohn-Tieche is made blue because of its depth in the cutis. The junction nevus is always flat and is always without hair and it may be of the type that has the pigment sort of trickling away from it. The Germans had a word for this, they called it "abtropfung," which means trickling away. This to me would explain why junction nevi, which grow into malignant melanoma, have a tendency to metastasize so early and so readily. In fact it seems to me that this tendency of junction nevi to push their pigment, so to speak, out into the surrounding skin and not to end abruptly is one of the things that should make you suspicious that this is a dangerous mole. For many years those of us who were taught anything about moles to speak of were taught that the lesion had to be blue-black or slate-gray or some dark color. We know now that a junction nevus can be various shades of brown or black.

Peller in Willis' book on tumors stated that 4 per cent of skin and lip cancers were malignant melanomas. Willis stated that he saw nine malignant melanomas in 1200 cancer necropsies. My own figures presented in 1948, which represented a ten-year survey in private practice, show that out of 3,331 skin cancers of all types, not keratoses or precancerous lesions, there were 16 malignant melanomas. The ratio of malignant melanomas in this paper was one to 208. In 1950, I presented a one-year survey in which 502 cancerous lesions were diagnosed. Out of this 502, 10 malignant melanomas were diagnosed, making a ratio of one to 50. I have attempted to explain this increase in the ratio of malignant melanoma to other types of skin cancer by saying that it was due to the people being more cancer conscious, and by their losing some of their fear about having moles excised. I am sure there must be other factors involved.

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Liberty is not in any form of government. It is in the heart of free man; he carries it with him everywhere—ROUSSEAU

INTERPRETING MEDICAL LITERATURE

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CARDIOLOGY

PROBLEMS IN ANESTHESIA FOR OPERATIONS ON THE HEART, by Leroy D. Vandam, M.D., and Thos. K. Burnat, M.D. (*New England Journal of Medivine*, Vol. 255 - 3, 110)

Much of the rapid advance in cardiac surgery can be credited to improvements in anesthetic techniques and the report of this article is to review some of the difficulties encountered and mistakes made in the anesthetization of patients with acquired heart disease who are poor risks. This experience extends over a period of years during which many anesthetic agents and techniques have been employed and has been done in an academic department (Harvard Medical School) under continued close supervision.

Because of the changing pattern of cardiac surgery, poor risks have been brought into the considered realm of correction and generally, experimental procedures have been offered the near-moribund patient in attempts at salvage. Mitral valvuloplasty, for instance, in the group IV functional case still poses a mortality of 20 per cent. These are the patients where the duration and degree of heart damage have progressed beyond mere pulmonary arterial hypertension to intractable congestive heart failure. Advancing age, mitral valve calcification, arrhythmias and systemic embolization have added to the risk of anesthesia in operations, and in the surgical attacks on the aortic valve, angina, syncope, and left ventricular failure, have frequently been present in those patients considered for surgery.

The procedures and drugs used to prepare patients for heart surgery add to the problems of anesthesia. Digitalization, diuretics, and restriction of salt and fluids in a rigorous attempt to achieve a dry body weight have produced disturbances in body fluids and electrolytes. The important effects of these changes on response of the heart to circulation are of real importance, and the problem of over-digitalization at the time of surgery may present a real problem in arrhythmias encountered during this period. One must determine in the immediate preoperative period if a tachycardia indicates apprehension, under-digitalization or digitalis toxicity. Electrocardiograms and clinical evaluation of every patient should be carried out thoroughly in this respect.

Re-evaluation of preoperative medications has led to rather striking reforms in this particular. For many years it has been standard practice in anesthesia to give an opiate and atropine before operations because it was held that the opiates would provide sedation and euphoria and would lessen the amount of general anesthetic needed. Atropine would, supposedly, block mucus secretion and protect the heart against vagal impulses. Actually, few of these objectives are achieved and the opiates at least do more harm than good. All of the opiates lead to circulatory instability rather than to desirable euphoria, and one may accentuate the hypotensive action of any of the opiates by transferring the patient to the operating theater and to the subsequent use of potentially hypotensive anesthetic agents. This can be disastrous in certain types of cardiac surgery, and in addition, none of the opiates have been proved to lessen the amount of general anesthetic needed. Atropine and its substitutes are not given routinely any more because of the fact that large amounts of atropine in the range of 1 mg. still only partially block vagal stimuli and much more important, provide a hazard in tachycardia, particularly in the digitalized patient with a satisfactory ventricular rate.

It is believed that hypoxia and hypotention are the prime factors in the production of cardiac arrest associated with anesthesia. For this reason, it is always recommended that the patient be oxygenated before and after tracheal suction and that tracheal suction be limited during operation on a poor risk patient and not done as a routine procedure. It should be done briefly and, as mentioned, always preceded and followed by oxygenation of the lungs. The same technique should be followed during the postoperative tracheal toilet. It is emphasized again that the choice of anesthesia is of less importance than the familiarity of the anesthesiologist. The crux of the matter is that the anesthetist must be versatile in several spheres, and most of all, familiar with the patient and the pathologic physiology of the disease. It has been shown that the mode of induction might have bearing on the difficulties encountered during anesthesia. Anesthesia has been induced in the poor risk by simple inhalational methods, sometimes preceded by pentothal, and as the patient loses consciousness the anesthetist talks, encourages and explains in a suggestive and, indeed, hypnotic manner. In the last analysis, it is the knowledge of the patient and his disease that leads to the correct choice of anesthesia, and one cannot speak in terms of an anesthetic agent that is useful and safe in all situations but rather in terms of a method for the particular patient. There are basic rules to be followed in all anesthetics and an anesthetist must be versatile in his techniques.

Comment: To me, the most interesting points about this article would be the elimination of opiates and atropine-like drugs as preoperative medications. None of the arguments for their use stand up under critical examination and all patients can be pre-medicated with a barbiturate, and a good anesthetist-patient rapport. The dangers of tracheal intubation and the postoperative tracheal toilet need re-emphasis, and the argument that hypoxia and hypotension produce dangerous arrhythmias rather than any vago-vagal reflex will certainly encourage the frequent prophylactic use of oxygen.

Treatment Chronic Congestive Heart Failure with Neohydrin for From Eight to Sixty-Five Months — Authors: George C. Griffith, et al, Department of Medicine, University of Southern California, School of Medicine, Los Angeles, California.

In an attempt to evaluate the usefulness of the most widely studied, recently introduced oral mercurial diuretic, Neohydrin, this group followed twenty-three patients with chronic congestive heart failure of duration varying from seven months to eighteen years. The age variation was from thirty-three to eighty-two years, and arteriosclerotic heart disease was the most common entity, although a significant number had inactive rheumatic heart disease and a few cases of hypertensive heart disease and cor pumonale were also represented.

These cases were given Neohydrin tablets, each containing the equivalent of 10 mg. of organic mercury and observed from eight to sixty-five months. The dose of the drug was from 1 to 3 tablets daily, although at times there were changes from this schedule as necessitated by the clinical status of the patient. Criteria for the effectiveness of the drug consisted of maintenance of "dry-weight" and maintained reduction or absence of raled peripheral edema and hepatomegaly. The patient's subjected improvement was of course taken into consideration.

These patients were divided into two groups, depending as to whether an elevated NPN or albuminuria or both were present at the onset of treatment or whether these were absent. Twelve patients had high NPN's without albuminuria and eleven patients showed no evidence whatsoever of kidney disease. This division was made because of the fact that injury to the epithelium of the renal tubules from continued use of organic mercurial diuretics has long been considered one of their dangers, but the follow-up of all of these patients with elevated NPN, with or without albuminuria, showed no clinical evidence of such damage attributable to the drug. Histologic study of the kidneys was possible in one patient, who had been on Neohydrin, two tablets daily, for nine months. Post-mortem examination showed normal kidneys except for passive congestion and there was no tubular damage. Findings in the present study indicate that albuminuria and high NPN's are not necessarily a contraindication to this oral organo mercurial diuretic. However, Neohydrin is probably contraindicated in the presence of primary renal disease, acute digestive tract disease, and speeific hypersensitivity. In complete agreement with other previous series devoted to this same study, it was found that oral Neohydrin was quite satisfactory in alleviating the signs and symptoms of congestive heart failure, and an excellent medication in maintaining the patient at a "dry" weight. Its use along with digitalis and salt restriction is all that is necessary in the majority of cases, and oral Neohydrin can replace injectible mercurials in the majority of cases.

Comment: Most physicians are interested in simplifying the regimen of any patient with heart disease. When congestive heart failure is present, and the patient is faced with the problem of taking several oral preparations, following a salt restricted diet and in addition to this requiring injections, suppositories, etc., in order to keep him comfortable, any improvement directed toward reducing the number of medications or in alleviating the difficulties of their administration are welcome. I have used oral Neohydrin for the last four years in most ambulatory cardiacs in congestive heart failure, and have noted no renal damage in any case. In addition, it has been quite efficient in replacing injectible mercurials in a large majority of these patients.

PEDIATRICS

MENTAL ABILITY AND SCHOOL ACHIEVEMENT OF PREMATURE CHILDREN AT 8 YEARS OF AGE. J. W. B. Douglas. *Brit. M. J.* 1:1210-1214 (May 26) 1956 (London, England.)

The results are described of reading, vocabulary, and pictorial intelligence tests given to a representative group of 407 children weighing 5½ pounds (2,495 gm.) or less at birth, and therefore, by international definition, premature, after they had reached the age of 8 years. They were compared with those of children weighing more than 5½ pounds at birth. Previous papers have described the health, the growth, and the age at walking of these two groups. Premature children scored less than their controls in each of these tests, being proportionately more (vocabulary) or ability to appreciate relationship (pictorial intelligence). The handicaps of premature children did not increase significantly with either falling birth weight or decreasing length of gestation. In general, the handicaps found were minor, but there was a small, well-defined group of premature children whose prematurity was unexplained either by obstetric abnormality or by the small size of their parents, and who were heavily handicapped in all tests. A more intimate and detailed study is needed both to confirm the present observations and, if confirmed, to attempt to explain them.

COMMENT: The findings of the authorities listed in this article are just as you would expect with premature children; however, it does not run true in all cases.

I have seen many premature children without the slightest indication of handicaps physically or mentally. Some of them are apparently more intelligent and are quicker to observe than some full-term children.

At the moment I have in mind two brothers both of whom weighed less than 5 pounds and were born within two years of each other. These boys are very active at the present time and are abov the average in intelligence.

SURGERY

LUNG ABSCESS

The sinister connotation which the diagnosis "lung abscess" formerly brought to mind has been greatly modified in recent years. This has resulted from improvement in both medical and surgical management. It is therefore timely to survey our current thinking regarding this condition, and to reassess important principles of diagnosis and treatment.

Etiology

The septic necrosis of lung parenchyma which leads to the formation of an abscess may follow any of a variety of circumstances. Thus, in one sense lung abscess may be compared with thoracic empyema: it is a collection of pus or an impending suppuration which may be due to any one of a number of different etiologic factors. Some of these factors are as follows:

1. Aspiration (of vomitus) while inebriated, or while under anesthesia, or following dental extractions, or under other circumstances.
2. Bronchial obstruction (tumor or foreign body)
3. Primary pneumonia with liquefaction
4. Septic emboli from phlebitis or late infection in an initially sterile pulmonary infarct
5. Liquefaction of the center of a tumor, with infection
6. Lung cyst, with infection
7. Penetrating injuries to the thorax
8. Penetrating infections, such as amoebae from hepatic abscess or actinomycosis from outside the lung
9. A complication of bronchiectasis
10. Other. less apparent, causes. This is a source of a considerable number of the cases encountered in practice.

Diagnosis

In the management of pulmonary suppurative disease (and lung abscess in particular), an orderly sequence of procedure often leads more directly to an accurate diagnosis. A sequence frequently employed is as follows: history, physical examination, chest x-ray, sputum studies, bronchoscopy (with further study of bronchial secretions) and bronchograms if required.

Symptomatology. The patient may be prompted to seek medical attention because of various symptoms, and few are truly characteristic. Cough with sputum of foul odor, or hemoptysis, may be present, but it is by no means prominent in all cases, particularly the early ones. Fever and malaise, with weight loss and anorexia, are common in untreated cases. Of course, eventually the lesion may reach proportions that all findings commonly associated with pulmonary suppuration are present. However, antibiotics have diminished the frequency with which these late cases are observed. The toxicity which the patient with the softening abscess exhibits usually diminishes if the abscess begins draining into a bronchus. The volume of sputum brought up may measure a pint or even a quart per day. Thus, spontaneous drainage of a lung abscess is to be hoped for.

Further Diagnostic Procedures. While the history and physical examination may suggest the possibility of lung abscess, it is the *roentgen examination* of the chest which usually establishes the diagnosis. If there is a cavity with an air-fluid level, associated with the symptomatology given above, the diagnosis of lung abscess is highly likely (tuberculosis exhibits a more indolent course). Of course, routine films may suggest a solid lesion, and body section films (laminograms, planigrams) may be required to demonstrate the less dense center. Or, the abscess may in fact represent a solid mass when the first film is taken, only to have "cavitated" when a second film is taken several days later. Or, the cavity may be completely filled with inspissated secretion and appears a solid mass on roentgen examination.

The *sputum* should be routinely examined for bacteria (including acid-fast), fungi, and tumor cells. A portion of biopsy material should be sent to the bacteriologic laboratory for culture.

Even if the chest x-ray renders the diagnosis of lung abscess highly likely, *bronchoscopy* should still be performed at least once, to rule out the possibility that the abscess is due to bronchial obstruction by tumor or unsuspected foreign body. Moreover, by dilatation it is often possible to improve drainage through the involved bronchus. In the beginning lung abscess, like tuberculosis, tends to involve only one pulmonary segment, but if untreated it may spread to involve neighboring segments, all of the lobe, or even all of one lung. At the time of bronchoscopy further secretions should be collected for routine and special studies. Occasionally the organisms of Klebsiella pneumoniae will establish the diagnosis of Friedlander's pneumonia, for the treatment of which chloramphenicol is an effective agent.

Bronchograms frequently are helpful in outlining the extent of the abscess, a possible bronchopleural fistula, or associated bronchiectasis.

Treatment of "Non-Specific" Lung Abscess

Let it be assumed that no tumor, foreign body, or specific infection is disclosed. How should the early abscess be managed?

More than fifty per cent of such patients can be successfully cared for by conservative treatment with massive doses of penicillin (2 million or more units per day) with or without streptomycin. The progression or regression of the lesion is followed with weekly roentgenograms. Generally speaking, as long as the lesion is becoming smaller and the patient improving clinically, medical or conservative treatment should be continued. However, the abscess must actually disappear, and the patient must be kept under observation until it does disappear. If the lesion persists, even though much smaller than on admission, it constitutes a constant threat to the health of the individual: firstly, it may flare up locally at any time; but secondly—and even more important—it may spread to destroy an entire lobe or lung. We have seen this happen in several individuals who did not return to follow-up after initial conservative therapy.

When Does An Acute Lung Abscess Become Chronic? There is no hard and fast rule but the period of six weeks is employed by many. The best chance for successful medical management is during the initial acute stage, before a hard fibrous wall has surrounded the abscess cavity. The chronic abscess with thick, fibrous lining usually requires surgery. Even so, surgery in those who require it has been rendered far safer by first giving the patient a course of intensive antibiotic therapy. In other words, all patients with lung abscess, whether complicated by foreign body, tumor, or other factors, should first have intensive antibiotic therapy. As with peptic ulcer or tuberculosis, the surgery of lung abscess is reserved for medical treatment failures.

Surgical resection may involve the removal of only one segment, occasionally a lobe. It is now rare that the entire lung is involved. The older procedure of draining an abscess through the chest wall has been largely abandoned, but in certain extremely toxic or elderly individuals, where medical treatment is inadequate but resection too risky, drainage still has a place.

In summary, the combined efforts of the internist and the surgeon have enormously reduced the morbidity and mortality of lung abscess.

Make the study of a regular thing; say little and do much; and meet every man with friendliness—The Talmud

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

M.A.G.P. OFFICERS ELECTED

The Eighth Annual Assembly of the Mississippi Academy of General Practice was attended by 239 physicians from Mississippi and nearby states, including a record-breaking 124 MAGP members. Professionally and socially it was an unqualified success. A. V. Beacham, M.D., of Magnolia took over the duties of president from Wm. E. Lotterhos, M.D., of Jackson. Officers elected were:

President-elect, John C. Longest, State College; Vice-president, Maxwell L. Berman, Jackson; Secretary-Treasurer, A. T. Tatum, Petal; Director District II, Nelson Tyrone, Prentiss; Director District IV, Louis F. Rittelmeyer, Jackson; Director District VI, R. J. Moorhead, Yazoo City; Director District VIII, Kermit D. Laird, Starkville; Director Distriet X, Maury H. McRae, Corinth; Delegate to AAGP, John B. Howell, Jr., Canton; Alternate Delegate to AAGP, A. T. Tatum, Petal.

ASSEMBLY HUGE SUCCESS

The Eighth Annual Assembly was largest in the history of the Mississippi Academy. In addition to hearing an excellent scientific program, members actively participated in an exceptionally productive business session. Action taken included:

1) Instructing the Mississippi delegates to the AAGP to introduce resolutions calling for a three-year moratorium on changes to the sections of the By-Laws pertaining to a) requirements for active membership, and b) postgraduate requirements for re-election to membership.

2) Recommending that medical graduates on the state scholarship loan program be given credit toward repayment of their loans for five years (up to one year) spent in approved general practice residencies.

3) Instructing the Board of Directors to set up annual budgets, which will enable them to more accutely chart the Academy's financial plans.

NEW MEMBERS ELECTED

The Board of Directors approved nominations for membership on behalf of the following applicants: Thomas L. Sweat, Corinth; James L. Dunagin, Hattiesburg; Edwin B. Werkheiser, Jackson; J. P. Culpepper, Jr., Hattiesburg; John T. Milan, Cleveland; Charles R. Jenkins, Laurel; Allen M. Read, Natchez.

AAGP MEET IN ST. LOUIS

It's not too early to start making plans to attend the AAGP meeting in St. Louis next March 25-28, 1957. Hotel reservation forms are on page 219 of the September issue of GP. Future issues will carry details of the scientific program. This should be the biggest and best AAGP assembly ever.

U. M. C. SCIENTIFIC DEDICATION

A two-day scientific program marking the dedication of the University Medical Center in Jackson will be held Tuesday and Wednesday, October 23 and 24. All Mississippi physicians are invited and Academy members may receive up to 10 hours of Category I (formal) postgraduate study credits.

APPRECIATION

The officers of the Academy wish to express their gratitude to all who helped make last month's Assembly the noteworthy accomplishment it was. The speakers, exhibitors (commercial and scientific), and local arrangements committees all deserve special thanks. So do the newspapers, the Heidelberg Hotel and all the members and guests who contributed to the over-all success of the meeting. THANKS to all of you!

The real use of all knowledge is this: that we should dedicate that reason which was given us by God for the use and advantage of man—Bacon

Good will is the mightiest practical force in the universe—Dole

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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FIGURES THAT ARE GRATIFYING

The following report was made to the Mississippi Commission on Hospital Care by its executive secretary, Foster Fowler, at a recent meeting. It is for a period of ten years, 1946 to 1955 inclusive:

During the ten-year period in question, the population of Mississippi increased 4.7 per cent; whereas, that of the nation increased 17.7 per cent.

Acute general hospital beds in Mississippi increased from 2.13 per 1000 to 3.12 per 1000, an increase of 46.5 per cent. In the nation, they increased from 3.38 per 1000 to 3.50 per 1000, an increase of only 3.6 per cent during the same period.

Admissions to acute general hospitals in Mississippi increased from a rate of 58.7 per 1000 population to 114.9 per 1000 population, an increase of 95.7 per cent. In the nation, admissions increased from 97.5 per 1000 to 115.8 per 1000, an increase of 18.8 per cent.

Admissions per available bed in Mississippi increased from 27.6 to 36.8 for an increase of 33.3 per cent. In the nation, admissions per available bed increased from 28.9 to 33.7, an increase of 16.6 per cent.

Two figures which are rather significant, show that in 1955 the rate of admissions per 1000 population in Mississippi was 114.9, and in the nation 115.8. This is significant in that it indicates that our utilization of hospital beds is almost up to the national average, although, our ratio of beds to population is still well below the national average. This results in our having 36.8 admissions per available bed in 1955 as opposed to the national average of 33.7 admissions per available bed. This relatively greater improvement which Mississippi has shown is largely attributable to the good distribution of beds brought about by construction under the program of the Commission, as well as the matter suggested by Mr. Hedgepeth, namely, that the ready acceptance by Mississippians of Blue Cross has made our people more able to go to a hospital when there is need for them to go.

Mississippi is certainly on the march in furnishing better medical and hospital care. If funds for hospital construction and health centers continue to be forthcoming we are sure this service will continue to grow. We are really just in the beginning.

NO MORE CHARITY HOSPITALS

Now the old political promotion for two state charity hospitals for north Mississippi has been renewed. Mississippi yet has four state-owned charity hospitals. It did have five when there were only seven or eight in the United States. There was a time when they served for a very good purpose, mostly as local hospitals. The system we have now of building hospitals is carrying full service right out to the people. The allocation of funds for the indigent was initiated that the poor people of the state might be able to stay in the hospital nearest them. The amount allowed per day is now too low, and it would be far better to adjust this that the people who really deserve state aid may be treated at home along with the pay patients. The doctors as a rule donate their services to these patients and when everything is considered it is good economy. The time has come when we will not need any state-owned charity hospitals except the teaching hospital we have at our medical school.

Patients over the state who are needed at our teaching hospital may be readily available from our community hospitals. This plan of referring clinical material for teaching purposes affords also excellent treatment for all types of patients. We are on the way with an unsurpassed medical service for all the people and with one of the best medical schools. Why change or hesitate?

HONORED

Dr. Frank Groner, administrator of the Baptist Memorial Hospital in Memphis which is owned by Arkansas, Tennessee, and Mississippi Baptists, was chosen president-elect of the American College of Hospital Administrators at the organization's assembly last week in Chicago. The Baptist Hospital in Memphis is said to be the largest not state-owned in the world. It is a great service institution, one of the most modern in the world. Dr. Groner is outstanding as a hospital administrator throughout this nation, both in ability and as a Christian citizen of the first order.

The field of hospital administration is open to untold opportunities for service. The demand for good administrators is hard to supply. Hospital administration is calling for men of versatility and balance and ability, with an understanding of good public relations. Hospital costs continue to go higher. There are reasons for this. The big challenge is to give the people more service for less money, to build morale and a good hospital atmosphere. Dr. Frank Groner is a composite of all these attributes. Congratulations to him and to the organization he is to serve as president.

DR. STACY

The passing of Dr. A. J. Stacy, Sr., of Tupelo took from the Northeast Mississippi Medical Society one of its most active and most popular members. He served as secretary of the society for many years.

Active in his field of radiology, he touched almost every phase of life in his community. It is doubtful if there is a doctor in the state who loves more his church. He served as a trustee of Blue Mountain College. He loved people and they loved him. At Ole Miss and at Tulane his warmth of personality was an unforgettable part of him.

We offer our sympathy to Mrs. Stacy and the daughters and to the son, Dr. Jack Stacy, who is doing also a fine work in the field of radiology.

News and Comment

3000 DOCTORS EXPECTED TO ATTEND SMA'S BIGGEST MEETING

Dr. Oscar B. Hunter, Jr.

The nation's capital will be host to members of the Southern Medical Association and their wives, for their Golden Anniversary meeting at Washington's Sheraton-Park Hotel, from November 12 through the 15.

According to Oscar B. Hunter, Jr., Washington physician and general chairman of the executive committee, more than 300 papers will be presented during the SMA scientific assembly, which includes 20 specialty sections. Especially noteworthy will be the symposium on geriatrics planned for November 15. The program includes, however, Dr. Hunter added, much more than strictly "professional" activities. There will also be official tours of Washington and vicinity, includng the city's unexcelled medical facilities; a performance by Washington Doctors' Symphony Orchestra; a golf tournament; and scores of special breakfasts, luncheons, dinners, alumni and fraternity reunions, and Woman's Auxiliary functions.

SMA comprises the state medical societies of 16 southern and border states, from Texas to Maryland, and the District of Columbia.

ACADEMIC DEDICATION

The University of Mississippi School of Medicine Jackson, Miss.

More than a dozen medical educators of top national stature will lecture during the University of Mississippi School of Medicine Academic Dedication in Jackson, October 23 and 24.

The University Medical Center will be host to physicians from Mississippi and adjoining states and to educators in the health professions from the entire country.

Tours of the Medical Center, completed less than a year ago, will conclude each morning session and a dinner in the Heidelberg hotel will climax the opening day.

Joseph C. Hinsey, Ph.D., director of The New York Hospital-Cornell Medical Center, will be speaker for the dinner at which Dr. W. Alton Bryant, Provost of the University of Mississippi, will preside. Dr. Hinsey's topic is to be "The University of Mississippi Medical Center and Its Objectives."

David S. Pankratz, M.D., dean of the School of Medicine and director of University Medical Center, will welcome those attending the scientific sessions which will be held in the Christian Center at Millsaps College beginning at 9:00 a.m., Tuesday, October 23.

Attendance at the scientific sessions is approved by the Mississippi Academy of General Practice for 10 hours of credit in category one.

Program, Tuesday, October 23

9:00 a.m.—Welcome, D. S. Pankratz, M.D., Dean of the School of Medicine and Director of the University Medical Center.

9:15 a.m.—"The Problems of Intersexuality," Bayard Carter, M.D., Professor and Chairman, Department of Obstetrics-Gynecology, Duke University.

10:00 a.m.—"Psychiatry and Undergraduate Medical Education."
G. N. Raines (Captain M.C., USN), Head of Neuropsychiatric Branch, Professional Division, Bureau of Medicine and Surgery, Department of the Navy; Professor and Director of Department of Psychiatry, Georgetown University.

11:00 a.m.—"Certain Unsolved Problems in Amoebiasis."
Henry E. Meleney, M.D., Research Professor of Medicine, Louisiana State University.

12:00 noon—Tour of the University Medical Center

2:30 p.m.—"Nutrition and Atherosclerosis"
Frederick J. Stare, M.D., Professor and Chairman, Department of Nutrition, Harvard School of Public Health.

3:20 p.m.—"The Place of Pathology in Medicine of the Future."
Douglas H. Sprunt, M.D., Director of the Institute of Pathology, University of Tennessee.

4:20 p.m.—"Some Interesting Pediatric Diagnostic Problems."
Amos U. Christie, M.D., Professor and Chairman, Department of Pediatrics, Vanderbilt University.

7:00 p.m.—Dinner, Heidelberg Hotel
Alton C. Bryant, Provost, The University of Mississippi, presiding.
Joseph C. Hinsey, Ph.D., Director of New York Hospital-Cornell Medical Center, speaker. Topic to be announced.

Wednesday, October 24

9:00 a.m.—"X-Ray Screen Intensification and Its Import in Clinical and Experimental Medicine."
Russell H. Morgan, M.D., Professor and Chairman of Roentgenology, Johns Hopkins University.

9:50 a.m.—"The Contribution of Pyramidal and Extrapyramidal System to the Use of Skeletal Muscle in the Primate."
Marion Hines, Ph.D., Professor of Experimental Anatomy, Emory University.

10:50 a.m.— Topic to be announced.
I. S. Ravdin, M.D., Johns Rhea Barton Professor of Surgery, University of Pennsylvania.

12:00 noon—Tour of the University Medical Center

2:00 p.m.—"Basic Physiology as a Clinical Science."
Carl J. Wiggers, M.D., Cleveland, (Ohio) Clinic, Emeritus Professor of Physiology.

3:20 p.m.—"An Experimental Study of Combined Viral and Bacterial Infections."
G. John Buddingh, M.D., Professor

and Chairman of Microbiology, Louisiana State University.

4:15 p.m.—"The Challenge of Mood-Altering Drugs."
C. D. Leake, Ph.D., Associate Dean, School of Medicine, Ohio State University.

MISSISSIPPI HOSPITAL ASSOCIATION

The twenty-fifth annual convention, silver anniversary, of the Mississippi Hospital Association will be held October 18-19, 1956, at the Hotel Edwards, Jackson, Mississippi. Meeting concurrently with the MHA will be the Mississippi Hospital Auxiliary, October 18-19; Mississippi Chapter, American Association of Hospital Accountants, October 17; Mississippi Association of Nurse Anesthetists, October 18-19; and Mississippi State Association of Medical Record Librarians, October 18-19.

AMITE-WILKINSON SOCIETY

The Amite-Wilkinson County Medical Society held its meeting Tuesday evening, September 11, at 7:30 at the Field Memorial Community Hospital at Centerville. An excellent dinner was enjoyed by the doctors and their wives.

The meeting was presided over by President Edsil Stewart. A short report was rendered by Dr. S. E. Field on medi-care and what it would mean. The program was rendered by guest radiologist, Dr. Walter Colbert, of Natchez General Hospital.

The meal was served by Miss Bowles and her staff of nurses.

NORTHEAST MISSISSIPPI SOCIETY

The Northeast Mississippi Medical Society held its third quarterly session in Amory on September 11. The attendance was fairly good. The local essayists were: Dr. John A. Murfee, Amory, and Dr. E. E. Thomas, Columbus. The guest essayist was Dr. James N. Ettledorf, pediatrician of Memphis. The papers were all very fine.

Dr. Howard Nelson of Greenwood, president-elect of the State Medical Association, was present and made a fine talk on the importance of doctors belonging to their medical society. He made other appropriate remarks.

The society agreed to cooperate with the recommended Medicare program.

Dr. Hunter Scales was honored with a fifty-year certificate and pin at the banquet.

Dr. W. N. Reed of Amory was another fifty-year man present.

MISSISSIPPI BLUE CROSS TODAY

A little more than ten years ago, our Mississippi legislature created in the Laws of 1946, the Mississippi Commission on Hospital Care and empowered this State Department to make the necessary grants for the construction of many of our hospitals, the Northeast Mississippi Hospital being the first to be completed. The Commission on Hospital Care was further given the responsibility of sponsoring some voluntary health prepayment program for the purpose of providing a means to the public to help them pay for future hospital care.

A great deal of study and research was conducted by the Commission on Hospital Care to determine the best type program to develop for Mississippi, and after much research, it was determined that Blue Cross was the best method and plan to follow. There are 86 Blue Cross Plans serving Americans, each one individually organized in the state or area which it serves but bound together through its affiliation with the American Hospital Association. The Mississippi Blue Cross Plan was organized in 1947 with the aid of the Mississippi Hospital Commission on Hospital Care and the Mississippi Farm Bureau Federation along with many public-spirited citizens. In 1947-1948, the Mississippi Commission on Hospital Care advanced our Blue Cross Plan approximately $19,000, and the Farm Bureau Federation advanced approximately $2,000, and 32 individual citizens signed a promissory note for $10,000 in order to get Blue Cross underway. These sums of money have been repaid, and from this small investment in the public's health, over 22 million dollars have been paid for the health protection of those farsighted people who joined the program.

Over 300,000 people in Mississippi now belong to Blue Cross which represents in excess of 25 per cent of the white population and 4 per cent of the colored population. For every dollar that these people have invested into Blue Cross for the first six months of 1956, 88.88 per cent have been returned for health care—an admirable record not obtainable by any other organization operating in like manner in Mississippi. In Prentiss County, over 60 per cent of the population are Blue Cross members, which represents over 70 per cent of the people hospitalized in our local hospitals. This is indicative of the fact that people who provide for themselves will seek and receive prompt medical care before an illness becomes too acute for quick recovery.

It is gratifying to know that the Mississippi

Commission on Hospital Care has achieved a great portion of its growth in constructing our much-needed hospitals in Mississippi, and just as gratifying to know that their sponsoring of Blue Cross for the people has done an equal job.

MISSISSIPPI STATE BOARD OF HEALTH MEDICAL LIBRARY

The great bond which exists among medical libraries everywhere is well reflected in the growth and development of the college maintained by the State Board of Health in the Old Capitol. It has received help from many areas of the world since it began functioning in 1936 and as a result it has a rich and varied collection, including many of the great classics in medicine, public health, dentistry, nursing and related fields.

The Library has long been a member of the Medical Library Association, whose primary aim is the fostering of medical libraries the world over in order that working tools may be available to give impetus to research and to advance medical knowledge on every front. The Association's Exchange is one of its most altruistic activities and through this medium have come many treasures for Mississippi's State Board of Health Library as well as the opportunity for finding a home for its own unneeded duplicate material which accumulates. In response to its offering of such material through the central Exchange, the librarian and her assistant (Miss Louise Williams and Miss Janie Kuykendall) sorted and mailed in June 1,710 single issues of journals and 38 bound volumes to 140 medical libraries in various areas of the United States and Canada and to several abroad. The foreign libraries included the World Health Organization Library, nine prominent medical libraries in Great Britain, two in Australia, one in Helsinki, Finland, and one in Brazil.

In addition to the work that has gone into building a useful medical and public health collection, effort is constantly being made to make the health professions aware of its existence in order that they may take full advantage of its services and facilities. Yet hardly a week goes by that there is not heard an exclamation by some new borrower, "I had no idea that such a helpful medical library existed. It ought to be made better known that everyone eligible for loan service might take full advantage of it."

In order to insure that many newcomers to the fields of medicine, public health and related sciences, may be better informed of library services available, *The Mississippi Doctor* is glad to publish again the rules and regulations governing loans of the State Board of Health Library:

> Loan privileges are extended to physicians in any area of the state and material will be mailed directly to the borrower or on inter-library basis. Books, except those which have constant reference use, are loaned for a two-week period and this period will be extended when needed unless there is a demand for the material.
>
> On journals, issues of the current year are loaned for 3 days, volumes of past five years for 1 week, and volumes over five years for 2 weeks.
>
> The privilege of borrowing carries with it the responsibility of observing loan regulations and the replacement of any item lost or damaged while on loan.
>
> The librarian is glad to help in the selection of references on any subject desired. It will simplify reference work to specify whether the material is needed for work on a scientific paper or case report, an address to a lay audience, or for assessing the current status of some diagnostic or therapeutic procedure.

The Library has added to its collection recently the following new books:

Wohl, M. G.—MODERN NUTRITION IN HEALTH AND DISEASE - DIETOTHERAPY. Lea & Febiger, 1955.

Diehl, H. S.—TEXTBOOK OF HEALTHFUL LIVING, 5th ed. McGraw-Hill, 1955.

Kotinsky, R.—COMMUNITY PROGRAMS FOR MENTAL HEALTH. Harvard Univ. pr., 1955.

Hathaway, W.—EDUCATION AND HEALTH OF THE PARTIALLY SEEING CHILD. 3rd ed. Columbia Univ. pr., 1954.

National Acad. of Sciences — SYMPOSIUM ON ATHEROSCLEROSIS. 1954.

Ackerknecht, E. H.—A SHORT HISTORY OF MEDICINE. Ronald press, 1955.

Cameron, C. S.—THE TRUTH ABOUT CANCER. Prentice-Hall, 1956.

Duncan, G. C.—A MODERN PILGRIM'S PROGRESS FOR DIABETICS. Saunders, 1956.

Thienes, C. H.—CLINICAL TOXICOLOGY. 3rd ed. Lea & Febiger, 1956.

Thewlis, M. W.—THE CARE OF THE AGED. 6th ed., Mosby. 1954.

Top, F. H.—COMMUNICABLE DISEASES. 3rd ed., Mosby, 1955.

New Books in the Library

Tanner, Fred W. & Louise P.—FOOD-BORNE INFECTIONS AND INTOXICATIONS, 2nd ed. Garrard Press, 1953.

Jones, Ernest—THE LIFE AND WORK OF SIGMUND FREUD. vol. 1, 1856-1900. Basic Books, Inc., 1953.

Duke-Elder, Stewart—PARSONS' DISEASES OF THE EYE, 12th ed. Macmillan, 1954.

Altschule, Mark D.—BODILY PHYSIOLOGY IN MENTAL AND EMOTIONAL DISORDERS. Grune & Stratton, 1953.

Hyman. Harold Thomas—HANDBOOK OF DIFFERENTIAL DIAGNOSIS. Lippincott, 1953.

Galdston, Iago, ed.—BEYOND THE GERM THEORY. Health Education Council, 1954.

Simmons, James Stevens—GLOBAL EPIDEMIOLOGY. vol III, THE NEAR AND MIDDLE EAST. Lippincott, 1954.

Raffel, Sidney — IMMUNITY, HYPERSENSITIVITY, SEROLOGY. Appleton-Century-Crofts, 1953.

PROCEEDINGS OF THE SECOND NATIONAL

CANCER CONFERENCE. 2 vols. American Cancer Society, 1952.

American Cancer Society. COLLECTED REPRINTS. 4 vols. 1952.

Von Oettingen, W. F. POISONING. Paul B. Hoeber, 1952.

Lukens, Francis D. W., ed. MEDICAL USES OF CORTISONE. Blakiston, 1954.

Wiener, Alexander S.—AN RH-HR SYLLABUS. Modern Medical Monographs, No. 9. Grune-Stratton, 1954.

Strode, George K., ed.—YELLOW FEVER. McGraw-Hill, 1954.

Watson, Ernest H. & Lowrey, George H. — GROWTH AND DEVELOPMENT OF CHILDREN. Year Book Publishers, 1951.

Kinsey, A. C.—SEXUAL BEHAVIOR IN THE HUMAN FEMALE. Saunders, 1953.

Corwin, E. H. L., ed.—ECOLOGY OF HEALTH. The New York Academy of Medicine Institute on Public Health, 1947. Commonwealth Fund, 1949.

International Poliomyelitis Congress — POLIOMYELITIS. Papers and Discussions Presented at the 2nd International Poliomyelitis Conference. Lippincott, 1952.

Harris, Seale. WOMAN'S SURGEON, the life story of J. Marion Sims. Macmillan, 1950.

Welch, Henry & Lewis, Charles N.—ANTIBIOTIC THERAPY. Medical Encyclopedia, Inc., 1951.

Rivers, Thomas M. VIRAL AND RICKETTSIAL INFECTIONS OF MAN, 2nd ed. Lippincott, 1952.

DuBos, Rene J., ed. BACTERIAL AND MYCOTIC INFECTIONS OF MAN, 2nd ed. Lippincott, 1952.

Padgett, Earl C.—PLASTIC AND RECONSTRUCTIVE SURGERY. Charles C. Thomas, 1948.

Walker, B. S.—BIOCHEMISTRY AND HUMAN METABOLISM. Williams & Wilkins, 1952.

Burgess, Perry.—BORN OF THOSE YEARS. Henry Holt, 1951.

Rantz, Lowell A.—PREVENTION OF RHEUMATIC FEVER. Charles C. Thomas, 1952.

SELECTED WRITINGS OF SIR WILLIAM OSLER, with Introduction by G. L. Keynes. Oxford Univ. Press, 1951.

Pinner, Max, ed.—WHEN DOCTORS ARE PATIENTS. Norton, 1952.

Hagan, W. A.—INFECTIOUS DISEASES OF DOMESTIC ANIMALS. Comstock, 1951.

Beckman, Harry—PHARMACOLOGY IN CLINICAL PRACTICE. Saunders, 1952.

Leopold, Simon C.—PRINCIPLES AND METHODS OF PHYSICAL DIAGNOSIS. Saunders, 1952.

Winslow, C. E. A. and Smillie, W. G.—HISTORY OF AMERICAN EPIDEMIOLOGY. Mosby, 1952.

Wintrobe, M. M. CLINICAL HEMATOLOGY. Lea & Febiger, 1952.

Duncan, Garfield G. — DIABETES MELLITUS. Saunders, 1951.

Graham, Harvey—ETERNAL EVE. Doubleday & Co., 1951.

Howorth, M. Beckett—TEXTBOOK OF ORTHOPEDICS. Saunders, 1952.

Krusen, Frank H., ed.—PHYSICAL MEDICINE AND REHABILITATION. Saunders, 1951.

Sherwood, N. F.—IMMUNOLOGY, 3rd ed. Mosby, 1951.

Bortz, Edward L.—DIABETES CONTROL. Lea & Febiger, 1951.

Maximow, A. A. and Bloom, William—TEXTBOOK OF HISTOLOGY. Saunders, 1952.

Key, John A. and Conwell, H. Earle—MANAGEMENT OF FRACTURES, DISLOCATIONS, AND SPRAINS. Saunders, 1952.

Smith, Homer W.—THE KIDNEY: STRUCTURE AND FUNCTION IN HEALTH AND DISEAS ford University Press, 1951.

Wechler, Israel S.—A TEXTBOOK OF NEUROLOGY, 7th ed. Saunders, 1952.

Moloy, Howard C.—EVALUATION VIS IN OBSTETRICS. Saunders, 1

Moyer, Carl A.—FLUID BALANC MANUAL. Year Book Publishers, 195

American Medical Association. MEDI CASES. ABSTRACTS OF COURT DECIS MEDICOLOGICAL INTEREST, 1941-1946. A Medical Association, 1950.

McBride, Earl D.—DISABILITY EVALUATIO, 5th ed. Lippincott, 1953.

Bachman, George W.—HEALTH RESOURCES IN THE UNITED STATES. Brookings Institute, 1952.

Association for Research in Nervous and Mental Disease. PROCEEDINGS. v. 31, PSYCHIATRIC TREATMENT. Williams & Wilkins, 1953.

Association for Research in Nervous and Mental Disease. PROCEEDINGS. v. 30, PATTERNS OF ORGANIZATION IN THE CENTRAL NERVOUS SYSTEM. Williams & Wilkins, 1952.

Sarton, George.—A GUIDE TO THE HISTORY OF SCIENCE. Chronica Botanica, 1952.

Monro, Thomas Kirkpatrick.—THE PHYSICIAN AS MAN OF LETTERS, SCIENCE AND ACTION, 2nd ed. Williams & Wilkins, 1951.

Deitrick, J. E.—MEDICAL SCHOOLS IN THE UNITED STATES AT MID-CENTURY. McGraw-Hill, 1953.

Muhler, Joseph C.—PREVENTIVE DENTISTRY. Mosby, 1954.

Smith, Homer W.—FROM FISH TO PHILOSOPHER. Little, Brown, 1953.

Anslinger, Harry J.—THE TRAFFIC IN NARCOTICS. Funk & Wagnalls, 1953.

Ackerknecht, Erwin H.—RUDOLPH VIRCHOW. University of Wisconsin Press, 1953.

Potter, Edith L.—PATHOLOGY OF THE FETUS AND THE NEWBORN. Year Book Publishers, 1952.

New York Heart Association.—NOMENCLATURE AND CRITERIA FOR DIAGNOSIS OF DISEASES OF THE HEART AND BLOOD VESSELS, 5th ed. New York Heart Association, Inc., 1953.

Netter, Frank H. — CIBA COLLECTION OF MEDICAL ILLUSTRATIONS. v. 1, NERVOUS SYSTEM. Ciba, 1953.

Josiah, Macy, Jr. Foundation—TRANSACTIONS OF THE FIRST CONFERENCE ON ADMINISTRATIVE MEDICINE, Mar. 9-11, 1953. Josiah Macy, Jr. Foundation, 1953.

National Foundation for Infantile Paralysis — COLLECTED REPRINTS OF THE GRANTEES, v. 14, pts. 1, 2. The Foundation, 1953.

Schlesinger, Edward W. — HEALTH SERVICES FOR THE CHILD. McGraw-Hill, 1953.

Schroeder, Henry A.—HYPERTENSIVE DISEASES. Lea & Febiger, 1953.

Todd, J. C.—CLINICAL DIAGNOSIS BY LABORATORY METHODS, 12th ed. Saunders, 1953.

Salter, Wm. T.—A TEXTBOOK OF PHARMACOLOGY. Saunders, 1952.

Holt, L. Emmett—PEDIATRICS, 12th ed. Appleton-Century-Crofts, 1953.

Alexander, Leo—TREATMENT OF MENTAL DISORDER. Saunders, 1953.

Duncan, Garfield G., ed.—DISEASES OF METABOLISM, 3rd ed. Saunders, 1952.

Conat, Norman F.—MANUAL OF CLINICAL MYCOLOGY, 2nd ed. Saunders, 1954.

Burnet, Macfarlane—NATURAL HISTORY OF INFECTIOUS DISEASE, 2nd ed. Cambridge University Press, 1953.

Belding, David L.—TEXTBOOK OF CLINICAL

PARASITOLOGY, 2nd ed. Appleton-Century-Crofts, 1952.

Smillie, W. G.—PREMENTIVE MEDICINE AND PUBLIC HEALTH. Macmillan, 1952.

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UNIVERSITY NEWS

Dr. Saib Shawkat, dean of the Royal College of Medicine in Baghdad, Iraq, visited the new University of Mississippi Medical Center in late August.

Sponsored by the International Cooperation Administration and the Public Health Service, Dr. Shawkat is spending three months in the United States gathering information to help develop plans for a new medical center in Baghdad.

In Jackson he conferred with Dr. David S. Pankratz, dean and director of the Medical Center, and Dr. David B. Wilson, director of the University Hospital,, on school administration and on construction and design of modern teaching hospitals such as the University.

Dean of the Royal College of Medicine in Baghdad since 1953, Dr. Shawkat was formerly director of Royal Hospital and professor of surgery in the Royal Medical College.

Dr. Floy Jack Moore, professor and chairman of psychiatry at the University Medical Center, was re-elected secretary-treasurer of the Southern Electroencephalographic Society at its annual meeting in Nashville last weekend.

Dr. Moore is presently attending the meeting of the Southern Psychiatric Association in Washington, D. C., where he is presenting a paper by invitation. Topic of his talk is "Current Trends in Psychiatric Education."

Dr. Thaddeus Labecki, Mississippi State Board of Health medical consultant, lectured before the Academy of General Practice in Columbus, Ohio, on September 19 and 20.

GREENWOOD CLAIMS VARIED PROGRESS

Greenwood, Mississippi, is a progressive and a growing city, its growth extending in all directions. As a medical center it is becoming more outstanding. Its hospital has overflowed and it is soon to have a new addition. The hospital has a fine nursing school. The medical staff of the hospital and the city are covering quite well the different fields of medicine. Heart conditions are receiving special attention. Greenwood is the home of the President-elect of the Mississippi State Medical Association, Dr. Howard Nelson, and also Dr. John Lucas, member of the Council of the Southern Medical Association.

NORTHEAST HOSPITAL ADDS WING

The Northeast Mississippi Hospital at Booneville is celebrating the completion of an additional 32-bed wing, giving it a total of 82 beds. This is the first Hill-Burton hospital built in the United States. Only a few months ago it acquired a modern nurses' home. This facility now with equipment, grounds and nurses' home is pushing up toward the million-dollar mark. It is looking forward to having a nurses' training school.

AMERICAN UROLOGICAL ASSOCIATION

The American Urological Association offers an annual award of $1000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition shall be limited to urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Hotel William Penn, Pittsburgh, Pennsylvania, May 6-9, 1957.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1956.

ALABAMA ICS

The annual meeting of the Alabama Division, International College of Surgeons will be held in Tuscaloosa, Alabama, on Wednesday, October 31, 1956. This meeting is one day in length and will be held at the Druid City Hospital. An excellent and varied program of scientific papers and panels is scheduled. All of the medical profession are invited and urged to attend.

COURTESY CARDS

JOHN W. LONG, M.D., M.S. (inSurg.)
W. ANDREW SWEAT, M.D., F.A.C.S.

Certified by American Board of Surgery
GENERAL AND THORACIC SURGERY
514-H East Woodrow Wilson Drive
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announces the opening of offices at
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Monday, Tuesday, Wednesday, Friday, Saturday
By Appointment Telephone 195

COURSE IN ELECTROCARDIOLOGY

A course in practical electrocardiology will be presented December 3-7, 1956, in Houston, Texas, by Dr. Demetrio Sodi-Pallares, Chief of the Department of Electrocardiology at the National Institute of Cardiology, Mexico City, under auspices of the University of Texas Postgraduate School of Medicine and Baylor University College of Medicine.

In addition to Dr. Sodi-Pallares' evening course and his clinical pathological conference discussions, individual instruction in reading electrocardiograms will be provided by faculty members of the sponsoring institutions. For more advanced students, panel discussions will be held on subjects of special interest to cardiologists. Inquiries should be addressed to The University of Texas Postgraduate School of Medicine, Texas Medical Center, Houston 25, Texas.

ANNOUNCEMENTS

Guy T. Gillespie, Jr., M.D., announces the opening of offices for the practice of medicine limited to diseases of the blood. 514-E East Woodrow Wilson Drive, Jackson, Miss.

Gordon L. Mathes, M.D., announces the removal of his office for the practice of urology-surgery, 899 Madison Avenue, Suite 205M, Memphis, Tennessee.

Onnie P. Myers, M. D., announces the association of Charles M. Johnson, M.D., in the practice of urology, 745 Carlisle Street, Jackson, Mississippi.

Cyrus C. Johnson, M.D., announces removal of his offices to 514 F. East Woodrow Wilson, Jackson, Mississippi, for the practice of urology.

NEW WOMAN'S AUXILIARY BOARD DISCUSSES PLANS FOR THE NEW YEAR

Seated, left to right—Mrs. R. C. O'Ferrell, Mrs. A. E. Brown, Mrs. Joseph Rogers, Mrs. J. D. Simmons. Standing—Mrs. A. T. Tatum, Mrs. Durward Blakey, Mrs. T. A. Baines, Mrs. M. S. Riddell.

Deaths

DR. ARCHIE STACY, SR.

Dr. Archie Jackson Stacy, Sr., radiologist at the Tupelo Community Hospital since April, 1923, died at the hospital September 29 after a heart attack. He was 68.

Services were held at his home in Highland Circle. The Rev. W. L. Day, pastor of the Tupelo Calvary Baptist Church officiated.

Dr. Stacy moved to Tupelo in 1923 after practicing in Burdette, Ark.

He was graduated from the University of Mississippi and received his medical degree from Tulane University in 1918.

He interned at St. Louis in the Frisco Hospital and served as a Frisco surgeon until his death.

Dr. Stacy was a member of the medical staff of the Tupelo Hospital as radiologist and a charter member of the Tupelo Community Hospital, which was constructed in 1936.

Dr. Stacy was secretary-treasurer of Northeast Mississippi Medical Society. He was a member of the American Medical Association and in 1939 was certified as a member of the American Board of Radiology.

For more than 30 years, Dr. Stacy was beloved by all Tupelo athletes as their personal physician while he served as the team's physician.

Dr. Stacy was a deacon and charter member of the Calvary Baptist Church. He was interested in promoting every phase of the church program and particularly interested in Christian education.

He served as a member of the board of trustees of the Blue Mountain College for Women.

Dr. Stacy was born at Reid, Miss., and was the son of the late Mr. and Mrs. I. D. Stacy. He married Miss Roberta Valliant, Sept. 15, 1919, at McCondy, Miss.

He leaves his wife; a son, Dr. A. J. Stacy, Jr., of Tupelo; two daughters, Miss Peggy Stacy of Jackson and Miss Miriam Stacy of Tupelo; a brother, Dr. Curtis Stacy of Water Valley, and three sisters, Mrs. Wayne Howell of Jackson, Mrs. E. F. Frye of Blytheville, Ark., and Mrs. Hamner Collins of Memphis.

DR. HENRY A. EASTMAN

Dr. Henry A. Eastman, 88, retired physician and pioneer resident of Gulf Hills, Ocean Springs, died August 26 in Jamestown, N. Y.

He was a native of Smethport, Pa., and practiced in Jamestown after graduation from the University of Buffalo. He built one of the first homes constructed in Gulf Hills in 1927, and also had a summer home at Lake Chatauqua in New York. He was a member of the Masonic Lodge.

Funeral services were conducted in Jamestown.

DR. J. M. WRIGHT

Dr. John Marion Wright. Sr., longtime Hernando physician, died of a heart attack August 23 at Campbell Clinic in Memphis. He was 73.

Dr. Wright was born in Prentiss County, son of the late B. F. Wright and Mrs. Martha McCrary Wright. He received his medical degree from the University of Louisville at Louisville, Ky.

The physician had practiced medicine more than 50 years in Hernando and DeSoto County. He retired two years ago because of illness.

He was a member of the DeSoto County Medical Society, Hernando Rotary Club, and the Christian Church.

He leaves his wife, Mrs. Sara Buntin Wright; a son, John M. Wright, Jr., of Shawnee, Okla.; a daughter, Mrs. Thomas W. Smith, Jr., of Park Forest, Ill.; two brothers, B. E. Wright and E. Clay Wright; a sister, Mrs. L. P. Allen, all of Belmont, Miss., and four grandchildren.

DR. T. L. ZUBER

Dr. T. L. Zuber, Negro physician and surgeon in Clay County, died July 27 in his office of a heart attack. He was 69 years old.

Funeral services were held at Mt. Hermon Church with Rev. W. I. Robbins officiating. Burial was in the West Point cemetery.

He was born in Oktibbeha County and attended Moorehouse College in Atlanta, Ga., and Meharry Medical College in Nashville. He had been a practicing physician in West Point for 40 years.

During his baseball career he played with the Birmingham Black Barons and was respected as being one of the most promising pitchers in Negro baseball. A versatile player with a keen batting eye, he was moved to second base when he wasn't on the mound. Dr. Zuber left the Birmingham Barons to further his education and ultimately graduated from medical college.

He enlisted in the army in the First World War, served with the medical department with services overseas and was discharged from the army with the rank of major.

Widely known in Republican politics in Mississippi, he had served as a delegate to the 1948 and 1952 national conventions and was selected to serve as a delegate to the convention in San Francisco.

A 33rd degree Mason, Dr. Zuber was also an Elk, past president of the Mississippi Medical Association composed of Negro doctors, trustee of the National Medical Association, and a member of the New York Academy of Science. He was also listed as a member in executive capacities in the Boy Scouts, Children's Court Commission and was a trustee in Ministerial Institute and College in West Point.

In 1952, the Mississippi Medical Association honored Dr. Zuber by presenting him with its man-of-the-year award.

Survivors include his wife, Augusta Zuber; and six children, Marcheta Davis Zuber; Elmetra Zuber, a graduate student at Columbia University; Alice Zuber, graduate student at Howard University in Washington, D. C.; Marlene Zuber Johnson; Charles Zuber and Vernice Zuber, all of West Point.

Dr. Zuber is also survived by a brother, Dr. Walter Zuber of Tupelo.

Dr. Zuber was gassed during front action in the war. and despite the infirmity of having only one lung, he actively practiced medicine in Clay County since before 1916.

DR. GEORGE BARNES

Services for Dr. George Barnes, 71, longtime Mississippi physician and former president of the Delta Medical Association, died September 14.

Dr. Barnes, who had practiced medicine 48 years in Red Lick, Natchez, McComb and Belzoni, was a graduate of the old Memphis Medical College. He was a member of the Delta, Mississippi and American Medical associations and was a Mason and a Methodist.

Survivors include two sons, Dr. Spencer Barnes of Columbus and Dr. Roy Barnes of Port Gibson.

DR. CLYDE SPEARMAN

Dr. Clyde Spearman, 72, of Coffeeville was killed instantly September 17 five miles north of Grenada on Highway 51.

A truck driven by Cecil Brown and the car driven by Dr. Spearman were traveling north on Highway 51. Both vehicles left the road on the right side, according to Highway Patrolmen Paul McElroy and Harold Browning.

Dr. Spearman was driving alone. Mr. Brown escaped without injuries.

Dr. Spearman had been practicing in Coffeeville for the past 25 years. Prior to that time he served as a physician in the Navy and as a Secret Service man.

He leaves a sister, Mrs. Irene Hyde of Vardaman.

DR. A. A. SPARKMAN

Dr. Arthur A. Sparkman, a staff physician at the Veterans Administration Hospital at Thomasville, Ga., who formerly practiced in Mississippi and Tennessee, died on September 14 at Kennedy Veterans Hospital. He was 68.

For many years Dr. Sparkman maintained a practice at Cleveland, Miss., his birthplace, and later at Martin, Tenn. He left his practice at Stonewall, Miss., three years ago to join the VA staff at Thomasville.

He was the son of the late Dr. L. B. Sparkman, who at the time of his death in 1940 was one of the oldest practicing physicians in Mississippi.

The younger Dr. Sparkman was a graduate of the University of Tennessee School of Medicine. He was a Methodist, a member of the Lions Club and American Medical Association.

He leaves his wife, Mrs. Evelyn Phillips Sparkman; his mother, Mrs. Ella Brown Sparkman, and a brother, A. B. 'Fred' Sparkman of Cleveland.

DR. J. W. HORNE

Dr. John W. Horne, 75, Lucedale physician for 43 years, died May 3 in a Mobile hospital after a short illness.

Born in Jasper County, Dr. Horne came to Lucedale in 1913 and had practiced medicine there since. Prior to coming to Lucedale he practiced in Jasper County.

He attended the Mississippi Medical College in Meridian and received his degree in 1909, graduating with honors. During World War II he served as medical examiner for the George County Draft Board.

He was a member of the Rocky Creek Church of Christ and the Masons.

He leaves his wife, Mrs. Zula Thigpen Horne; one son, Merle Horne of Lucedale; three daughters, Dr. Johnnie Horne McLeod of Charlotte, N. C., Mrs. Roy Jernigan of Roswell, N. M., and Mrs. G. H. Calderwood of Oxnard, Calif.; three brothers, D. T. Horne and R. L. Horne of Bay Springs and G. E. Horne of Nashville, Tenn.; three sisters, Mrs. C. E. Waites of El Dorado, Ark., Mrs. O. L. Winborn of Wink, Texas, and Mrs. Fred Gentry of Pinon, N. M., and twelve grandchildren.

FOR SALE: 50 Milli-Amp. Continental X-Ray machine—like new. 2-Pack Castle Gas Autoclave—40-inch, used for one year. 3-Piece Commercial Laundry—used six months. Ideal for clinic or small hospital. The Coahoma Clinic, Clarksdale, Miss.

WANTED: Good, used microscopes for medical students. Give make, approximate age, and price. Dr. J. W. Ward, Anatomy Department, University Medical Center, Jackson, Mississippi.

Diagnosis and Treatment of Common Vaginal Infections*

EDWARD ALLEN, M.D.†
Chicago, Ill.

THE DIAGNOSIS and treatment of the ills of the prepubertal and adolescent girl occupies more than 50 per cent of the skill and time of the specialist in pediatrics. I venture to say that a very much larger number of these problems is brought to the man in general practice than to the pediatrician. He is the primary adviser to the entire family in all of their problems of sickness. Therefore, he is in a most fortuitous position to add to and develop the diagnosis of disease and carry on the care of these youngsters in this the most important, next to birth, epoch in their lives. He guides them through the crises of their croup, appendicitis, exanthemata, broken bones and consistently gives them the benefits of all the latest measures in preventive medicine. He has, on the other hand along with the pediatrician, followed the generally accepted policy that disease or complaints involving the young female genitalia may be ignored unless they are alarming. Dr. A. H. Parmalee, one of our great pediatricians, says in discussing this subject, "The false modesty and puritanism that seems to be the chief reason for this neglect, exists in the doctor, I fear, more often than in the patient or her mother." Up until recent years the adolescent girl who had passed her twelfth to thirteenth year and had therefore progressed beyond her pediatric care, was without specific medical supervision until she appeared for her premarital examination or in many instances until after her marriage or first conception. The National Pediatric Society finally became aware of this grave fault at their national meeting in Boston in 1941 and at this time suggested that pediatric care be extended to the age of maturity or 18 years. I think that we must all admit that this was a very excellent decision and has on the whole produced many far-reaching results in the health and happiness of our future mothers of America. We should question, however, that the pediatricians have pursued with the same skill and diligence, that they have in the other fields, the portion of the program which has to do with pelvic examination and disease of their adolescent patients. A cursory examination of the external genitals of the newborn or in the prepubertal period is not proportional to the regular, thorough examination accorded to the other systems such as heart, urinary organs, teeth, nose and throat, etc. Approximately 30 per cent of disease in the female occurs in the organs of reproduction. If we then add to this the elements of psychosomatic imbalance and problems of sexual adjustment, the total becomes very impressive. As I talk and consult with my confréres, including pediatricians, I am convinced that their reactions to diagnosis and therapy in the adolescent girl are tremendously colored by their concepts of virginity and the importance of the intact hymen. Religious and social mores, lack of medical teaching in our schools, have outweighed the knowledge that the truly intact hymen is a pathological condition and needs correction. The fact that menstrual blood normally escapes from the vagina and the insertion of menstrual tampons, that are now so widely used, must definitely indicate to us that there is a sufficient opening in the normal hymeneal ring for painless, exact vaginal examination. Virginity is a state of mind or morals and not an anatomical condition. The younger adolescent tissues are, the greater is their elasticity and "stretchability" without injury or the production of discomfort. We are quite sure from our experience thus far that, first, an adequate skilled examination can be done and simple therapy carried out without appreciable pain to the patient. Secondly, that when it can not be done, it is due to some abnormal condition which will in all probability give trouble in later years, and thirdly that when pain is produced in the normal individual, the examiner is not sufficiently skilled in this simple technique or that fear of the patient is translated into actual discomfort.

In the early years of practice we were impressed by the ease with which those few little patients who were brought to us could be examined and treated by a process of gradual progressive education and gentleness in all procedures. These few patients were usually referred by doctors and had the good fortune usually to have excess vaginal discharge, had been threatened with rape or were bleeding profusely. Today most of these that come are referred by intelligent mothers who are interested in their daughter's welfare and desire for her the same preventive routine examinations that she herself wishes. We can illustrate this fact best by the figures in Table I taken from our work with private patients. (Table I).

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(Tables reproduced from article by the author in Am. Jr. Ob. and Gyn., Vol. 68, No. 5, pp. 1311-1320, 1954).

TABLE I. TOTAL NUMBER OF INDIVIDUALS EXAMINED

	Nurses	*Private Patients*	
Presumably virgin nurses (ages 17-22 years)	989		
Unmarried nurses (23 or over)	112		
Married nurses	20		
Private patients (ages 3-17 years)		200	
Total nurses	1,121		
Total patients		1321 + 219	1540

An additional number of 203 nurses and 15 private patients have also been examined during the two years since these statistics were compiled. These are not sufficient in number to analyze their findings, but the results, I believe, correspond to those in the original report[1]. The physical findings in the original group were normal to rectovaginal examination in 634 instances of the 1,121 in the group of nurses.

Beginning with this information, the sparse material in the literature and the belief that we will not go far in the early detection of pelvic cancer in women until we train them early in life concerning the need for and ease of routine pelvic examination, we attempted to initiate a routine check of the applicants for nurses' training at Presbyterian Hospital in Chicago. Tremendous opposition from the nursing as well as the medical staff was met. During fifteen years of trying these, objections were gradually overcome, and it was finally agreed to make a trial study in 1946 of the fall class of nurses. Only 13 young women of this group refused examination and some weeks later they expressed the desire to be included. Since then each class has been so treated and the examination repeated each year. This ruling has been extended now to include the staff nurses as well as all of the female employees of the hospital. This program has placed a tremendous load on the gynecological department of the hospital, but it has paid off in big dividends in saving lives, rejections, loss of nursing and employee time, improved efficiency and the education of a large number of future mothers and teachers. We hope that these young women will pass on to their patients and daughters the knowledge gained during this educational program and will thereby prevent many of those sad cases, which we all see too frequently, who delay examination, even in the face of symptoms, because they have a fear or distaste for an adequate pelvic diagnosis. We believe that this ideal can best be accomplished by beginning it in the early years of life before all the common misconceptions concerning it and the natural sexual inhibitions have appeared on the scene.

We believe that the increased knowledge gained by a widespread interest in this great field of preventive as well as curative medicine will provide us with additional tools to insure the better pelvic health of an increased number of our children. It should help us to avoid many of the unfortunate physiological, psychological and anatomical maldevelopments which later cause infertility, frigidity, dyspareunia, dysmenorrhea and other important gynecological complaints. In the process we will uncover an amazing number of major and minor diseases of the genitals. In medicines, we are still teaching our students to cure disease rather than to prevent it. This program, we believe, can be most ideally initiated by the doctor in general practice who has delivered the child and who therefore has the complete confidence of the parents. To this triad, of doctor, mother and father, should many times be added the pediatrician, gynecologist, endocrinologist, and rarely the psychiatrist. The psychiatric assistance we have had in our work has been very satisfactory. We have been assured that no evidence of psychic trauma caused by these pelvic examinations has been discovered.

A recent study by Miss Sylvia Melbz, our director of nurses, which will be published soon, epitomizes the reactions of our examinations among a representative group of these student nurses.

SAMPLING OF NURSE OPINION — TOTAL 140

		Question I	*Question II*	*Question III*	*Question IV*	*Question V*
Freshmen	95	11 no 84 yes	45 no 50 yes	66 no 29 yes	86 ok 4 thought doctor rough 5 no	14 no 80 yes 1 no answer
Juniors	19	19 yes	14 no 5 yes	8 no 11 yes	19 ok	1 no, but good idea 2 no 16 yes
Seniors	26	26 yes	16 yes 6 no 4 no answer	26 no	26 ok	1 if indicated 1 not at our age 24 yes

Questions:

1. Does this examination in your opinion, have good health teaching value for your future?
2. Was the review given before the examination clear?
3. Do you feel there was over-emphasis and if so by whom?
4. How did you react to the doctor's examination?
5. Do you think annual pelvic examinations are necessary?

Do you think all schools of nursing should include pelvic examinations for their students? All students answered yes.

Conclusions drawn by nursing supervisors:

1. Ninety per cent understood value to themselves, 10 per cent not yet impressed sufficiently.
2. Twenty-one per cent newly enrolled still do not have concept gained by juniors and seniors.
3. There was over-emphasis and fear produced by instructors and big sisters.
4. Doctor's examination commented upon favorably as a whole.
5. One hundred per cent believe all nursing schools should include gynecological examination in their health program.
6. Plans to give examination later in the first week.
7. Have one of the senior gynecologists explain the anatomy, the preventive medical aspects of routine and emphasize the fact that the success of this health protective measure for them will depend on its continuance throughout life.
8. Only two mothers have objected, one overruled by daughter. One student dropped due to not meeting scholastic requirement of her courses.

TABLE II. TREATMENT OF HYMEN AND CERVIX

Dilatation hymen	41
Incision hymen	12
Hymenal dilatation for cautery or dilatation of cervix	45
Cautery cervix	142

It is interesting to note that of the 1101 unmarried nurses, there were only slightly more than 12 who required incision of the hymen for adequate pelvic examination or therapy. The majority of these were done at the request of the patient after she had been told that the abnormality would probably cause dyspareunia during the first portion of married life. Many of these were delayed until marriage was contemplated and long enough before consummation so that healing was assured before wedding plans were completed. We believe that these hymenotomies and those stretched under gas anesthesia have reduced materially the "bad starts" that so many young women experience and often lead later to relative frigidity.

Cautery of the cervix was superficial and for the symptoms of increased vaginal discharge.

TABLE III. MENSTRUAL ABNORMALITIES

Dysmenorrhea	309
Amenorrhea	22
Menorrhagia	28
Metrorrhagia	5
Oligomenorrhea	2
Severe menstrual migraine	1
Total	367

A subsequent study of dysmenorrhea since the preliminary report has been fruitful and illuminating. This study covered 443 nurses during the years 1948-1952. Approximately 80 per cent of these individuals developed painful menstruation after they entered the training school. The increase was progressive as they moved to more responsibility in the care of patients. The greatest increase occurred during the period when they were assigned to the Illinois Neuropsychiatric Institute. Next in frequency came the surgical operating rooms and the labor or delivery rooms in maternity. This increase was probably also augmented by the mounting tensions of today's living.

1948	19
1949	61
1950	19
1951	47
1952	118
	264

This dysmenorrhea was sufficiently severe that over 60 per cent required medicinal or surgical relief. Sixty per cent of all nurses used medication at the menstrual period.

The medications used were:

Edrisal	60%
A. P. C.	29%
Thyroid	20%
Miscellaneous	1%

In spite of relief measures, the loss of time from training was considerable. It varied from three hours to two days. By the year, there has been even more striking progression.

1948	13 days
1949	19 days
1950	44½ days
1951	79½ days
1952	109½ days
	265½ days

Figured in actual dollars at the present going rate for nursing services in this area, this would amount to $4,248.00.

Thyroid was prescribed with the diagnostic help of the basal metabolic test but primarily on the basis of the clinical evidences of lowered thyroid function. It was not continued if results were not prompt. Changes in nutrition were often more effective, lasting and spectacular. These same factors coupled to the detection and cure of the occasional vaginitis were for the most part also effective in improving or curing those menstrual irregularities listed in the foregoing table.

These figures lead us to believe that the greatest portion of the menstrual dysfunctions found in this series, were on the basis of functional, metabolic or glandular maladjustment, rather than those listed as disease processes in Table VI.

TABLE IV. BASAL METABOLISM

	Nurses	*Private*
Nurses not checked	581	
Nurses checked one or more times	540	
Normal Reading (—10 to +10)	228	34
Abnormal	312	24
Thyroid prescribed	164	49

It is evident from this table that approximately one-half of this series were checked by basal metabolic rate. That considerably more than one-half reveal abnormal readings according to the accepted standard, but that slightly more than one-fourth were given thyroid extract.

Among the younger aged private group where the basal metabolism test was less meaningful, one-fourth were subjected to the test and about the same proportion given treatment with thyroid.

TABLE V. VAGINITIS DISCOVERED AND TREATED

	Nurses	*Private*
Trichomonas	16	1
Monilia	13	13
Nonspecific	28	2

The increase in vaginal infections with advancing age is evident in this chart and suggests the importance as etiological factor of menstruation, its associated procedures and possibly sexual experiences. You will note, however, that only one incomplete abortion occurred in this large group of young nurses.

TABLE VI. SUMMARY OF OPERATIVE PROCEDURES

Operation	*No of Cases*	*Laparotomy*	*Colpotomy*	*Combined*	*Private*
Endometriosis	8	2	5	1	
Dermoids (one portion benign teratoma)	2		1	1	
Teratomas (1 papillary cystadenoma?)	3	1		1	1
Serous cystomas	2		2		
Twisted hydatid cyst and appendix fecalith	1			1	
Bilateral cystic ovaries	1	1			
Persistent corpus lutem, severe dysmennorhea (9 months)	1			1	
Webster round ligament, severe dysmenorrhea	2	2			
Appendix	1	1			
Freeing postappendiceal adhesions to abdominal wall and ovary	1	1			
Exploratory colpotomy, nothing found except movable retroversion	1			1	
Artificial vagina constructed	1				1

Three hundred and seven of the nursing group had had surgery in some form before they entered training. Of these procedures, 13 were performed on the ovaries and 11 on other pelvic organs. We believe that with proper gynecological consultation the added number of 84 appendectomies could have been materially reduced.

Endometriosis was diagnosed in 20 individuals. Ten of these were operated upon for the relief of symptoms. Two of the teratoid tumors were called malignant by our pathological department. One patient was 14 years of age, the other 17 years old. Both are alive and well. The third was called papillary cystadenoma. We feel that the cure of two possibly malignant tumors (ovarian) in this group has alone made this program worthwhile. We do not believe that one will adequately improve the detection of early pelvic cancer until we teach our adolescent girl and her doctor that pelvic examination should be performed at regular intervals throughout her life.

TABLE VII. MISCELLANEOUS PROCEDURES

Dilatation and curettage	45
Hymen dilated	41
Hymen incised	12
Cautery of cervix	142
Posterior colpotomy	11
Incomplete abortion	1
Removal vaginal cyst	1
Hemorrhoidectomy	1
Pilonidal cyst	1
Total	255

This large number of miscellaneous minor procedures added to the major surgical procedures just described, adds up to an impressive total of protective and curative procedures needed in this group of young women.

TABLE VIII. SURGERY ADVISED AND REFUSED

	Nurses	*Private*
Colpotomy	3	
Laparotomy for ovarian cyst	1	
Hymenotomy	2	
Dilatation	2	

Cauterization	3
Perineal rectal fistula	1

The small number of refusals of surgical advice, frequently from parental objections, speaks for a high degree of confidence developed by these young people in their medical attendants. The choice of their gynecological examiner and surgeon was left entirely with the individual patient. Consultation with the family physician was encouraged.

TABLE IX. PATIENTS UNDER 18 YEARS OF AGE SEEN IN OFFICE, 1936-1953

Number of Patients	200
Visits	600
Referred by parents	104
Referred by doctors	62
Referred by friends	34

Striking evidence is indicated by the above chart of private patients that parents, properly educated, are more frequently asking for examination for their daughter than are those referred by doctors. All of the 62 patients referred by doctors had symptoms of disease; not one was the daughter of a physician although my medical confréres indicate that they believe and practice routine physical examination. The greatest portion of those referred for routine check without symptoms were referred by parents. Many of them were babies delivered in my private practice.

TABLE XIII. PATIENTS UNDER 18 YEARS OF AGE SEEN IN OFFICE, 1936-1953

Weights

Normal (6 pounds under or over)	62
Over	58
Under	43
Unrecorded (early years)	37

MENSTRUAL HISTORY

Age	*No. of Patients*	*Days of Flow*	*No.*
9	1	1	2
10	5	2	3
11	30	3	7
12	43	4	20
13	35	5	37
14	17	6	19
15	6	7	21
		More than 7	11

The far-reaching and important results of bad nutrition are just beginning to be fully appreciated by the medical profession. It may be the most time-consuming, and therefore the most neglected, of our therapeutic measures. It can be, however, one of the most rewarding and lasting satisfactions, to fix the habit of proper eating in the growing girl. Machines, including the human one, work best and longest when they are greased and oiled in a proper manner.

TABLE X. PATIENTS UNDER 18 YEARS OF AGE SEEN IN OFFICE 1936-1953

Age	*No. of Patients*
3 years	3
4	2
5	1
6	1
7	5
8	9
9	4
10	6
11	12
12	14
13	20
14	21
15	31
16	30
17	41

The age group of private patients is revealed in the accompanying table.

TABLE XI. PATIENTS UNDER 18 YEARS OF AGE SEEN IN OFFICE, 1936-1953

Complaints

Gynecological:	
Amenorrhea	12
Dysmenorrhea	36
Menorrhagia	24
Very irregular periods	21
Spotting between periods	8
Redness, irritation of vulva, discharge	12
Vaginal bleeding (8 years)	1
No vagina	1
Congenital defects (perineal rectal fistula)	1
Rape	1
Pregnancy	9
General:	
Routine checkups	26
Urinary symptoms	7
Enuresis	3
Abdominal pain	7
Backache	2
Headaches	9
Fatigue, irritability, nervousness	1

The menstrual irregularities occurring in this younger group were frequently only those seen commonly during the first year of menstrual function. Reassurance of the patient and her parents in these instances usually sufficed. However, many times the dysfunction was an indication of abnormalities in anatomical functional or nutritional backgrounds. Recognition and correction in these earlier years were generally more effective, and I believe had more important effects on future reproductive life, than in the more mature group among the older nurses. It would appear to us that this area is a great and still practically unstudied and little understood field of preventive medicine.

The nine pregnancies in the private group either were given obstetrical attention followed by help in adoption of the baby or if mature enough, urged to marry.

The absent vagina was recognized at six years of age. She was not seen again until the age of 17, although the mother was informed about the condition and need for reconstructive surgery at a later date. Her second examination was urgent following the giving of large doses of hormones to start menstruation by her family physician. He had sounded the urethra and assumed that it was the vagina. The patient has now been happily married for three years and for the last year has been the mother of an adopted child.

TABLE XII. PATIENTS UNDER 18 YEARS OF AGE SEEN IN OFFICE, 1936-1953

Findings	
Adhesive vaginitis	4
Cervical erosions	7
Development—Male hair distribution	4
Marked development of vulva (12 years)	1
Hypertrophied lip over clitoris	2
Hymen tight—8, cribriform 1	9
Foreign bodies in vagina	2
Mass in cul-de-sac	1
Mental defective (request for sterilization)	1
Uterus, small	5
Enlarged 5 times	1
Absence of vagina	1
Teratoma of ovary	1
Endometriosis (16 years)	1
Breasts — (lumps)	5
no development	2
irregular development	1
Albumin	7
Glycosuria	3

This and the preceding chart indicate that experienced medical help is needed in the prepubertal and adolescent girl. Her needs are often graver because of the far-reaching effect on her developing organs and psychology than is that for her adult or menopausal mother. Opportunities for education and helpful correction are more frequent than after they have reached full maturity.

TABLE XIV. FINDINGS IN 254 OFFICE PATIENTS UNDER 20 YEARS OF AGE

	Age (Years)				
	0-5	6-10	11-15	16-20	Total
Organic Pathology					
Congenital anomalies					12
Absence of vagina and uterus	1			4	
Absence of vagina with vestigial uterus				2	
Bicornuate uterus				3	
Intersexual		1		1	
Adherent labia	4				4
Neoplasms					4
Malignant	1				
Benign				3	
Salpingitis			1	4	5
Vaginitis and cervicitis	2	4	2	3	11
Miscellaneous (breast and obesity)					16
Total					52
Functional Disease					
Bleeding			9	23	32
Puberty praecox	2	2			4
Oligo and amenorrhea				12	12
Severe dysmenorrhea		1	5	38	44
Psychosomatic disease		2	7	21	30
Premarital				6	6
Miscellaneous					14
Total					142
Normal pregnancy				50	50
Abortion				2	2
Urologic disease			1	7	8

The above series were reported by Dr. Frank R. Lock during the discussion of the report by the author of the major portion of the material contained in the tables comprising this presentation. These were private patients referred to Dr. Lock for obstetrical and gynecological complaints. They re-emphasize the major development, psychological and physiological diseases that may be found by routine general and physical examination in adolescent girls.

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Vaginal Hysterectomy*

JAMES L. ROYALS, M.D.
Jackson, Miss.

We are presenting here a study of 100 vaginal hysterectomies we have done on private patients showing statistical data on the indications, complications and results of this procedure. One hundred cases are being reviewed so that at the same time figures quoted will be actual numbers of cases and percentages. We have found this to be an enlightening study as we pause and look back to see what has been done and accomplished. We did not proceed with this study with any preconceived ideas of advocating any one procedure over another but merely to report what we have been doing and some opinions that we have developed as a result of our experience.

The time element covered in this study is about five years. When I consider a report on 100 vaginal hysterectomies done by a small group in five years' time, I am reminded of a conference I attended in Philadelphia, Pennsylvania, a few years ago at which a doctor reported on 5000 vaginal hysterectomies that he alone had done. When the floor was open for discussion, one of the retired professors of that community, a rather outspoken and forthright individual, got up to make a statement. He said the only thing he had to say was that any individual who had done 5000 hysterectomies ought to be put in jail. Our figures on 100 vaginal hysterectomies do indeed seem modest by comparison.

During the five-year period when we were doing 100 vaginal hysterectomies, we performed 175 abdominal hysterectomies. In other words, 36 per cent of all the hysterectomies we have done in the last five years were done through the vagina. During the same time, the rest of the staff at the two hospitals in which we work did 2597 hysterectomies, 13 per cent of which were done through the vagina. The only thing this shows, of course, is that we favor the vaginal route more strongly than do the remaining members of the staff. We did not attempt to break down the remaining staff into specialists in obstetrics and gynecology, general surgeons and general practitioners with surgical privileges; but it was apparent in reviewing the figures that those individuals who specialize in obstetrics and gynecology favor the vaginal route more strongly than do the others. Our observations in this regard closely parallel those that have been made in almost all parts of the country in comparative studies. We believe that it can be concluded that intensive training and increased familiarity with vaginal surgery tend to develop a favoritism for this approach to many pelvic problems.

It is unfortunate that vaginal hysterectomies, and indeed almost all "blind" operations, suffer a bad or at least questionable reputation in the minds of many people. This undoubtedly developed from poor results at the hands of individuals who attempted vaginal surgery in its early phases of development who were not properly trained or indoctrinated in this procedure. We have found that vaginal surgery in properly chosen patients is often technically easier than the abdominal approach but that if poor judgment or poor surgical technique are employed the results can be poor indeed.

INDICATIONS

The pathology report on almost all of the 100 uteri removed vaginally showed chronic cervicitis, but the clinical diagnosis of cervicitis was part of the preoperative diagnosis in 58 of our cases. It was the only preoperative diagnosis in three cases. In two of those three cases, the pathology report showed other conditions which would have justified hysterectomy had they been known to exist in advance of surgery. Cervicitis itself should not often be the sole indication for hysterectomy. However, in a patient who has a large family, who is in the upper age bracket of the childbearing period, and in whom the cervix is badly infected and hypertrophied, a simple vaginal hysterectomy will often be the treatment of choice. This procedure would compare favorably in morbidity and in time lost from work with such procedures as extensive conizations, cauterizations or trachelorrhaphies.

Fifty-three of our cases had a preoperative diagnosis of some degree of prolapsus uteri. There is no doubt that prolapse of the uterus makes the operation technically less difficult, but with good exposure as provided by good surgical assistants, vaginal hysterectomies in cases with no prolapse can be readily performed. We have done several vaginal hysterectomies on patients who have not borne any pregnancies.

Cystocele, cysto-urethrocele and rectocele are frequent partners to the indication for the vaginal hysterectomy. Twenty-five of our patients had some degree of cystocele or cysto-urethrocele, while 43 had some degree of rectocele and/or enterocele. We, therefore, did 25 anterior and posterior colporrhaphies in association with vaginal hysterectomies, while in 18 of our patients we did rectocele repairs alone with the hysterectomy. Of these cases with vaginal wall relaxation, 13 complained of clinically bothersome stress incontinence; and in these cases, of course, greater care was exercised in supporting the bladder neck.

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*Presented before the Section on Obstetrics and Gynecology at the eighthy-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956

Sixteen of our patients had a preoperative complaint of menorrhagia, while nine complained of metrorrhagia. Of these cases with excessive bleeding problems, two had submucous fibroids, three adenomyosis and two polypoid hyperplasia of the endometrium. We assigned the remaining cases Only four of our patients had third degree retroversion as a part of the preoperative diagnosis. In none of these cases was this the only preoperative indication for surgery. It is surprising to me, in looking over the figures, to find no vaginal hysterectomies done on a basis of symptomatie retroversion alone. Certainly, in the upper childbearing age group, when the family is complete, a patient with troublesome symptomatic retroversion proved by pessary trial might well be best treated by vaginal hysterectomy.

Fourteen of our patients had clinical fibroids, two of which required morcellation for removal per vagina. However, we do not advocate the vaginal removal of a fibroid uterus that is so large as to make the technical procedure an exercise in surgical gymnastics. It is true that one can morcellate the uterus and by piece-meal dissection remove a large fibroid tumor through the vagina, but these demonstrations of technical skill are not justified because of the increased hazard to the patient.

CONTRAINDICATIONS

I once saw a doctor demonstrating his vaginal hysterectomy technique to a group of visiting doctors. He had considerable difficulty trying to get mobility of the organ and after vainly trying for a while called for the patient's old chart. He was embarrassed to find that he had done an abdominal wall type suspension of the uterus on that patient several years previously. Of course, he then elected to abandon the vaginal approach in favor of the abdominal.

We have used almost any type of previous pelvic surgery as a contraindication to the vaginal approach to hysterectomy. Possible exceptions would be post-partal tubal ligations, simple ovarian cystectomies and low cervical type cesarean sections. Encountering dense pelvic adhesions and scar tissue such as often found with endometriosis can make the procedure extremely difficult.

Large pelvic tumors, pelvic inflammatory disease offer strong deterrents to the vaginal approach. Nor have we attempted the operation through a virginal introitus or in patients known to have cancer. All of these contraindications may be said to be "mechanical" in nature as a result of distortion of normal anatomy, decreased mobility, or inadequate exposure.

TECHNIQUE

We cannot speak too highly of the value of good assistance, good positioning of the patient and good anesthesia in doing vaginal surgery. The patient, in a lithotomy position with her feet held relatively high in a sling and with her thighs flexed against the lateral aspect of her trunk, is positioned in the most advantageous manner. The table should be elevated so as to conserve the backbending efforts of the assistants. This does not create any greater technical difficulty for the operator because he can be sitting on a high stool with his feet on a foot rest. (We have tried the operation in the standing position with the table up quite high. However, we do not feel as comfortable with this technique as in the sitting position, and hence have abandoned this method.) The positioning of the patient as previously described will allow the two assistants to step in close to the operator so that they will be in a better position to retract. Ideally, the assistant on the operator's left should be right-handed and on the operator's right should be left-handed. Time spent by the operator in training assistants and in positioning the patient to the best advantage is well-spent indeed. Good, relaxing anesthesia is almost as important in vaginal hysterectomy as in abdominal surgery. Not only will intestines fall free of the operative site, but mobility and exposure of the pelvic structures will be enhanced by adequate relaxation.

Exposure of the vaginal site can be improved by use of the weighted speculum and by insertion of the Wesson retractor. This retractor is constructed in such a manner that when placed in the vagina it will hold the lateral walls of the vagina away from the cervix. This is effective in allowing operative room and will often free assistants from the tiresome task of steady retraction, allowing them to be of more assistance in the technique of the surgery. With this means of posterior and lateral wall retraction, the only other retractor often required will be a right angle retractor inserted in the anterior vagina so as to support the bladder and anterior vaginal wall. The control of bleeding high on the broad ligaments as they retract into the abdomen is made relatively easy by good exposure as provided by good position, good retractors and good assistance. However, it can be one of the most trying experiences of the surgeon's day in the absence of these good assisting features.

The Heaney technique was used in all of our vaginal hysterectomies. A circular incision about the cervix is made at the muco-cervical junction, the bladder is reflected by blunt dissection from the anterior fundus, the anterior cul-de-sac and then the posterior cul-de-sac are entered. In steplike procedures, the elements of the broad ligaments on each side are clamped, cut and ligated until the uterus is removed. The peritoneum is sutured to the vaginal mucosa with a running purse-string type stitch which incorporates the upper elements of the broad ligament at each lateral aspect of the vault. When complete there is a doughnut-type ring at the vault with serosa sutured to mucosa. This ring is closed anterior to posterior with interrupted or running stitch. Of course, in those cases where anterior vaginal wall repair is done, the purse-string suture is not placed until the anterior vaginal wall has been repaired, and then the vaginal cuff closure is accomplished as above described. And if a posterior colporrhaphy is to accompany the procedure, it is done as the last step.

In many instances, the vaginal approach to a hysterectomy easily permits removal of the adnexal organs. In one case, we removed the left tube and ovary, and in one case both tubes and ovaries. In all cases, we were able to inspect the tubes and ovaries visually and in most cases could have removed them had it been desirable.

We are not time conscious in our surgical technique. We believe that five or ten minutes more or less operating time has little or no effect on the operative results or morbidity of the patient. Being careful and handling the tissues gently is much more important than speed. But it has been interesting for us to notice that as we developed as a surgical team, learning each other's operative methods and standardizing small techniques, our time element grew shorter and shorter. In many cases where only a vaginal hysterectomy was done, the procedure was completed in 18 to 20 minutes without any effort at rushing the operation. In those procedures where anterior and posterior colporrhaphy accompanied the vaginal hysterectomy, the operating time would often go to 45 minutes to one hour. There were a few cases, however, in which the control of bleeding was difficult and in which more time was consumed in completing the operation.

We are not enamored of fancy surgical techniques. We believe that vaginal hysterectomy is a mechanical job that can be learned by anyone with average technical ability and that once a good technique has been learned results among different operators will be almost indistinguishable. We are living in a time when there are many well-trained surgeons and the day of the great surgical giant whose ability as an operator shone clearly above his fellow surgeon is over. Not that surgical technique should be considered lightly but it can be readily learned under proper conditions.

COMPLICATIONS

Using a morbidity criteria of 101 degrees on two or more days, after the first day of surgery, we had five morbid cases. The inherent nature of a vaginal hysterectomy, working with an infected cervix in the operative field throughout most of the procedure, would tend to create a little more sepsis than if the surgical procedure were done through the abdomen where the cervix is only lifted out after it has been exposed to the operative field. With this in mind, we often employed prophylactic antibiotics after vaginal hysterectomy. This, of course, clouds the picture of our morbidity study and does not give a true picture of septic results. In the last few months, we have been inserting two vaginal suppositories of terramycin on the evening before surgery and believe this is helping to prepare the surgical field.

There were four postoperative hematomas that required some type of surgical intervention. Two of them were drained through the vagina and caused very little difficulty in recovery. The other two were postoperative bleedings that occurred under the bladder flap and formed a dissecting type hematoma which elevated the bladder peritoneum into the abdominal cavity. These two cases were detected when the blood pressure fell a few hours after surgery and a palpable mass developed in the midline of the lower abdomen. Both of these cases were returned to surgery and were opened abdominally. The hematomas were evacuated, the bleeding points ligated and abdomen closed. Both of these patients made an uneventful recovery, and their hospital stay was not increased above that of the average abdominal hysterectomy. I had thought that these would be the worst complications that I would have to report to you and would be the only two really major complications. However, the other day, as the last case of this series, we were performing a vaginal hysterectomy on an extremely obese individual whose pelvic structures had little or no motility. In hindsight, I realize that it was a poor choice to do a vaginal hysterectomy, but nevertheless we did one. After the uterus was removed, we noticed some bleeding from the infundibulopelvic ligament where the peritoneum had been split as a result of traction of this element. We attempted to reach the bleeding point so as to clamp and ligate it, and in doing so traction was placed on the ligament which made the rip go even higher into the peritoneum. Rather than clamping blindly we elected to enter the abdomen from above. We so did, ligated the bleeding points, and completed the procedure as in any routine abdominal hysterectomy. The patient made an uneventful recovery. This is one of the inherent advantages of the vaginal hysterectomy. If the going gets difficult, it is an easy matter to go above and complete the job through the abdomen. And in so doing very little if any is added to the trauma of an abdominal hysterectomy. The surgeon should remain flexible in his approach to vaginal surgery, being ever ready to recognize that the vaginal approach to the problem may be too difficult to complete. He should readily admit his judgment has been in error in utilizing the vaginal approach and then go above to complete the job. I often compare this same logic to failed forceps. Occasionally obstetricians seem unwilling in their tenacity to admit failed forceps and will continue to apply pressure and traction in a stubborn effort to complete the delivery from below. The doctor should always remain flexible, be willing to recognize difficulty, back out and proceed in another direction if it offers greater safety to the patient.

There was one patient who developed a clinical cystitis which responded readily to urinary antiseptics. We had no fistulas develop and no demonstrable evidence of damage to the urinary tract or to the rectum.

The length of hospital stay varied rather widely. Six patients were discharged on the fourth postoperative day, 25 on the fifth day, 16 on the sixth day, 10 on the seventh day, 5 on the eighth day, 2 on the ninth day, 4 on the tenth day, and one each on the fourteenth, fifteenth and sixteenth day. These latter cases with a prolonged hospital stay were all complications relating to the inability to void. They were in cases who were spastic by their nature, highly nervous and tense, and just could not relax and, therefore, had difficulty in returning to a normal type of voiding. There were no serious complications in this group.

RESULTS

The long term follow-up examination on all of these patients has been uniformly satisfactory. The vaginal vaults are all well-supported. There has been no return of cysto-urethroceles or of rectoceles. No secondary surgery has been indicated. The slightening of the vaginal depth has been of no clinical importance. The vagina continues to be an elastic organ and accommodates itself to its requirements.

SUMMARY

The only difference between an abdominal hysterectomy and a vaginal hysterectomy is that with an abdominal hysterectomy there is a scar in the abdominal wall with its prolonged and painful recovery period and with its resultant potential of adhesions and herniation. Exactly the same end can be accomplished by removing the uterus from below, the difference being that the abdominal wall is not disturbed, which, all things being equal, is a real advantage to the patient. Hysterectomies done through the vagina are less traumatic, cause less postoperative pain and distention, permit easier early ambulation, carry fewer long-term complications, and are the method of choice unless contraindicated. We are encouraged to continue our favoritism for this operative approach.

DISCUSSION

Dr. J. A. K. Birchett (Vicksburg)—The essayist has given us an excellent resumé of the procedure for vaginal hysterectomies. The excellent results that he has obtained is in the cheerful selection of cases for this procedure. In quoting Dr. Royals, "Vaginal hysterectomy in properly chosen patients is often technically easier than the abdominal approach, but if poor judgment in selection of patients or faulty technique are used, the results are poor."

In his hands, 37 per cent of hysterectomies done were done by the vaginal route. Apparently this is above the average for this area, for as reported by Dr. Royals, the other hospitals in the Jackson area had only 13 per cent of hysterectomies done vaginally in a relatively large series, in Vicksburg at Mercy Hospital-Street Memorial the percentage of vaginal hysterectomies being 13.2 per cent. The large variation between these percentages in all probability is due to the degree of the associated pathology in the pelvic structures, in which it was elected to do a vaginal approach and in those in which it was advisable to do an abdominal approach. In other words, the pathology was more complicating in those in which abdominal hysterectomy was indicated.

In his report of the pathological diagnosis of his cases, done by vaginal hysterectomy, we feel that he had sound judgment for doing surgery in this group of patients as the preoperative diagnosis justified the operation. However, we consider it would have been of interest to know the average age of the patients who were treated in this group. Another interesting statement that was made was that apparently there was such a small number of patients who had pelvic relaxation such as cystocele and rectocele, as there were only 25 anterior and posterior colporrhaphies done in this series of 100 patients, and in 18, rectocele was done alone with the hysterectomy. Most of us consider that a patient that is in need of a vaginal hysterectomy has some tendency to some degree of uterine prolapse associated with relaxation of the anterior vaginal wall and the vaginal floor, resulting in cystocele and rectocele. Usually this occurs in those of advancing age, usually past the menopause.

In Dr. Royals' report of the pathological diagnosis of his cases, we feel that he has sound judgment for doing surgery on this group of patients. However, he mentions the procedure of morcellation, which, to me, if there were a tumor mass large enough to have to resort to fractional destruction to facilitate its delivery through the vagina, I feel that this type of case would be better approached by the abdominal route. We agree that in a history of any type of pelvic inflammatory disease or ventral fixation or suspension, that it is better not to attempt surgery by the vaginal route, or any mass which is of such size that there is any doubt that it can be satisfactorily delivered through the vaginal canal, without undue risk of hemorrhage or trauma to the bladder or ureters should be excluded from the vaginal approach.

In reviewing the cases which have had hysterectomies at Mercy Hospital-Street Memorial in Vicksburg from 1951 to 1955, inclusive, there were 476 hysterectomies. Four hundred and thirteen were done by the abdominal approach and 63 by the vaginal approach, or 13.2 per cent. The average age of these patients was 58, the oldest being 76 and the youngest 31. In reviewing these case histories, in all of them there was some degree of prolapse of the uterus and relaxation of the vagina with associative rectocele and cystocele, with many associative diagnoses ranging from adenocarcinoma of the uterus, early epidermoid carcinoma of the cervix, fibroids, all of atrophic type as most of these patients were beyond the climacteric. There was also associated diagnoses of chronic endometritis, leukoplakia of the cervix, adenomyosis, chronic cervicitis, fibroadenoma of the uterus and polyp of the cervix.

All of these patients were subjected to vaginal hysterectomies because of the feasibility and easy approach to the uterus through the relaxed vagina and without evidence of associated pelvic abdominal symptoms. We, like Dr. Royals, tried to select our patients with careful evaluation before doing the vaginal approach for uterine disease.

Dr. Royals has shown you how he has worked out this excellent technique following the Heaney procedure and has shown the importance of a well organized surgical team to facilitate a rapid and successful procedure which we all recognize as making better surgery.

Our operative procedure has followed the Mayo technique by using the broad ligament to close the defect in the vaginal vault with closure of peritoneum and fixing the ends of the round and upper broad ligament under the pubic arch to give adequate support to bladder, with approximation of broad and utero sacral ligament in midline, followed by plication of vaginal mucosa to prevent further herniation or development of enterocele. To safeguard the development of enterocele, the posterior colporrhaphy is done for the repair of rectocele. The perirectal fascia is identified and brought together so that the suture line of the vaginal closure and rectocele repair are in close proximity to insure against the development of an enterocele.

I consider that vaginal hysterectomy has a very definite place in the surgical treatment of uterine disease when the proper indications are followed. I still feel, however, that if there is any question of doubt as to which route to take, it is better to do a hysterectomy by abdominal approach, as there are many opportunities for observation in the pelvic and abdominal cavity, which, of course, is not feasible by the vaginal route.

I have enjoyed Dr. Royals' paper very much and I deeply appreciate the opportunity of joining in the discussion.

Character is nurtured midst the tempests of the world—GOETHE

In contemplation of created things by steps we may ascend to God—MILTON

Current Trends in Tuberculosis*

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Streptomycin was first administered to a human being on November 20, 1944. The patient was a 21-year-old white girl with progressive, far-advanced pulmonary tuberculosis. Today she is still alive, is leading an active life, is married and is the mother of three healthy children[1].

In the intervening 11 years a revolution has taken place in the management of tuberculosis. The changes have affected the diagnosis, prognosis and epidemiology as well as treatment of the disease. It would be well to consider some of these changes and re-evaluate our care of the tuberculous patient in the light of present-day experience.

Diagnosis is still dependent on the tuberculin skin test, the x-ray, and finding the tubercle bacilli in the sputum, gastric washings, and fluid from exudates. However, culture is now a very useful technique in addition to smear and guinea pig inoculation. A diagnosis of tuberculosis should not be made lightly, and every effort should be exerted to confirm the diagnosis bacteriologically. Your state health department is able and ready to help you with all the modern techniques.

Interestingly, as the age of the population has increased, more and more elderly people are developing tuberculosis. Formerly new cases were almost never seen past 40, but during the past year we have seen at least six cases develop in individuals of 45, 60 or even 80. These elderly patients seem to tolerate the disease better, and to become less acutely ill. This is good for the patient, but makes the diagnosis more apt to be missed. It increases the public health hazard when certain cases go undiagnosed. One needs to suspect tuberculosis at any age and it must be ruled out in any pulmonary illness. The simultaneous occurrence of bronchogenic carcinoma and tuberculosis is seen more often in these elderly individuals. One should be suspicious of any x-ray shadow which grows larger during treatment while the remaining shadows are resolving. Such a lesion may be carcinoma[2]. The occasional cavitating neoplasm makes the differential diagnosis between tuberculosis and carcinoma still more difficult[3].

Since the advent of the cortisone treatment of sarcoidosis[4], it has become even more important to distinguish it from tuberculosis. Cortisone may aggravate a tuberculous lesion. The tuberculin skin test is emphasized here. The sarcoid patient almost always has a negative Mantoux test. The skin test can be of considerable assistance in the diagnosis of tuberculosis generally, especially if the test becomes positive in an individual who has had a known negative reaction in the past.

Fungus disease offers another problem in diagnosis. Since histoplasmosis was first described ten years ago it has been sought for and found with increasing frequency[5]. We are within the endemic area for this disease and should certainly be on the lookout for it. Apparently histoplasmosis can mimic tuberculosis even to the point of producing Addison's disease[6]. Here again a skin test with histoplasmin is helpful, especially with a negative tuberculin test.

There is no doubt that the chest x-ray surveys conducted during the past 15 years have been of great value in control of tuberculosis although many of our patients seem to think so. It is quite possible to develop tuberculosis in the six months since the last survey, and we must not overlook this possibility. We feel that it is of great importance to follow any pulmonary lesion until it disappears radiologically. Early tuberculous lesions may well improve on bed rest and treatment with "combiotic." only to flare up again in a more resistant form after treatment has been discontinued. Some pneumonias may be tuberculous in origin, and must be so recognized. Promiscuous use of streptomycin in combination with penicillin or alone will make the diagnostic problem much more complex. A few "shots" may make it impossible to secure accurate diagnosis.

Pleurisy with effusion is a special problem that must be considered carefully. In reported series of idiopathic pleurisy with effusion, *i. e.* those cases where a diagnosis could not be established, follow-up revealed that from 16 per cent[7] to 65 per cent[8] eventually developed tuberculosis. Furthermore, the disease was usually more resistant to treatment[7]. Surgical studies have shown that the pleuritis is secondary to caseous tuberculosis within the lung. Many pulmonary lesions seen surgically were not visible to x-ray even on retrospective study[9]. Therefore, it is important to exhaust all means to make a definitive diagnosis in pleural effusions. This should include the skin test. If such a definitive diagnosis cannot be made, it is advisable to treat these people with anti-tuberculous chemotherapy for at least a year, bed rest for at least six months and aspiration of the fluid so that the space is kept as dry as possible[10]. Fluid should be submitted for laboratory study several times, before drugs are given, if possible.

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Of course the most profound changes have resulted from the introduction of the antituberculosis drugs, first streptomycin and more recently, isoniazid and para amino salicylic acid, or PAS. Newer preparations, notably viomycin and pyrazinamide have been developed, but these are less effective, more toxic and find their greatest usefulness in those cases which have become resistant to the three prime agents[11]. Because of these drugs, definitive surgery, particularly resection of the diseased area, has become practical, and is of great value. Collapse therapy, such as pneumothorax, thoracoplasty, and pneumoperitoneum have become less and less useful and have almost been replaced by drug therapy and surgical resection.

Rest is still of prime importance in tuberculosis management[12]. However, with the realization that climate plays a very minor role in healing tuberculosis, this rest is being secured at home, or in tuberculosis centers near the patient's residence. The famous Trudeau Sanatorium closed its doors this past year. With the drugs, more patients are able to be cared for entirely at home, or at least the period of hospitalization can be greatly reduced, and sanatorium beds can be used for those patients in need of more definitive therapy, particularly surgery.

This change in the type of care puts a greater responsibility on us as private practitioners. It means that we *must* know enough about the disease to manage it adequately, and to recognize the case that needs hospital care. Fortunately order is beginning to come out of the chaos of the earlier days, and we now have well established treatment regimens which we can follow. The development of resistant strains of tubercle bacilli has posed a real problem and has led to specific recommendations.

1. At least two drugs, and probably three, must be given concurrently.
2. They must be given continuously, without interruption.
3. They must be given for at least a year in minimal cases, and much longer in more advanced cases.

If these three criteria are met the possibility of resistant strains developing is greatly reduced, and the patient stands a much better chance of recovering.

Any one of the following schedules constitutes good chemotherapy for the various forms of pulmonary tuberculosis:

1. Isoniazid 100 mgm. TID plus PAS 4 grams QID.
2. Isoniazid as above plus streptomycin 1 gram IM two or three times weekly.
3. All three drugs together, each in doses given above.

In these dosages, serious side effects seldom occur, even in treatment continued two or three years[11].

Strict bed rest must be observed as long as there are signs of toxicity, such as fever, rapid pulse, loss of weight or failure to gain, and a rapid sedimentation rate. After this, limited activity may be allowed, but this should be greatly restricted for at least six to 12 months. Regular hours of rest, food, activity and sleep should be enforced. Diet is important and adequate nutrition must be maintained.

A tuberculosis hospital is an excellent place for the patient to learn these rules, and for this reason as well as many others, we feel it wise to start the patient's care in such a place if at all possible. Certainly a stay in the "san" has a salutary effect on the patient, and the physician will profit greatly from the consultation and advice he will receive.

Many early or moderately advanced cases will respond to this régime of rest plus drugs alone. In those that do not, surgical resection is available. While indications for surgical resection are still being debated, the following criteria are generally accepted as definite indications:

1. The so-called destroyed lung.
2. Severe bronchial stenosis.
3. Residual cavities persisting after six months or more of chemotherapy.
4. Tuberculoma
5. Bronchiectasis associated with tuberculosis
6. Certain individuals with personality problems such as instability, alcoholism, etc., who will not follow the recommended medical régime[12].

The type of resection—*i. e.* the segmental resection, the lobectomy, or pneumonectomy, depends on the amount of disease present. It is important to remove as much of the diseased tissue as possible. At times the primary focus may have to be removed after secondary foci have responded to chemotherapy. Before surgery is attempted we must be sure that the pulmonary reserve is adequate.

It is in these surgical cases, as well as in the advice and consultation they can give us, that the men at the sanatorium can contribute so much. But *we* must be alert to the needs of the patient, and refer him when he needs their care. We in Mississippi are blessed with an excellent tuberculosis sanatorium, and it is up to us to use it to its full advantage.

We must emphasize the importance of long-term follow-up of the cured or arrested case. This follow-up is probably more important since the advent of chemotherapy, for we are more inclined to release the patient sooner and with a greater feeling of security than we did before.

The drugs are too new for us to say that they are curative, and we are seeing more and more cases of relapse. If caught early, the relapse can be handled easily; if not, the result may be disastrous.

Non-pulmonary forms of tuberculosis, such as renal or miliary, respond amazingly to chemotherapy. The cure rate in miliary tuberculosis is now between 90 and 100 per cent, and the results in renal tuberculosis are similar. Meningeal tuberculosis can also be cured, but unfortunately too often irreversible damage may occur before treatment can become effective and the child is left almost a vegetable from permanent brain damage. It is probably advisable to treat this condition on suspicion alone, before the definitive diagnosis can be made. Only in this way can a few patients be salvaged.

Finally, we must always remember that tuberculosis is a contagious disease and as such is a public health problem.

Any care of a tuberculous patient must include consideration of the family and others exposed to the patient's disease. The assistance of the county health officer and his nursing staff is invaluable here, but we can help greatly in securing the willing cooperation of the family.

SUMMARY

1. Tuberculosis is being seen with increasing frequency in the older age groups and must be considered in the differential diagnosis of any respiratory illness.
2. Any pulmonary lesion must be followed to complete resolution and until the x-ray picture clears.
3. Sarcoidosis, bronchogenic carcinoma and fungus infection must be carefully considered in differential diagnosis. The tuberculin skin test is still very useful.
4. It is important to use at least two antituberculous drugs, and often three, to give them continuously, and for at least one to two years. The recommended combinations are: isoniazid and streptomycin, isoniazid and PAS, and all three drugs together. Adequate dosage, regular administration and sufficient time must be given.
5. Surgical resection of diseased lung tissue is replacing collapse therapy and offers a great deal to the control of the disease.
6. Rest is still of prime importance.
7. The availability of chemotherapy and the feasibility of home care puts more responsibility on the private practitioner to treat tuberculosis effectively.
8. Follow-up of all arrested and presumed cured cases is even more important than formerly.
9. Miliary and extra pulmonary tuberculosis respond well to chemotherapy if given in adequate dosages, and continued long enough.

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Bilateral Tubal Pregnancy*

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A CASE OF BILATERAL tubal pregnancy is reported because of the rarity of the condition and to emphasize the importance of examining both adnexae during laparotomy.

The diagnosis of bilateral tubal pregnancy is not usually made preoperatively. The condition cannot be reproduced in experimental animals nor is it found in animals, even though multiple ovulation and pregnancy is the rule. Bilateral tubal pregnancy is a human problem. Abrams and Kantor[1] in 1948, reported the incidence of bilateral ectopic pregnancy at 1:1580 ectopic pregnancies. Stewart[2] reported an incidence of 1:750. Beacham[3] reports the incidence of ectopic pregnancy to term pregnancy of 0.95 per cent. The incidence of bilateral tubal pregnancy to term pregnancy, based on the above figures, would be from 1:71,250 to 1:150,000.

In 1937, Levine[4] reported a case of simultaneous, bilateral tubal pregnancy and referred to 29 authentic cases, previously reported. Fishback[5] in 1939, insisted that microscopic evidence as well as description of fetuses and clinical facts were necessary to establish the diagnosis. He reviewed the literature and referred to 76 verifiable cases. A case of two pregnancies in the right tube and one in the left tube was also reported. Lee and Stone[6] in 1940, reported the seventy-ninth authentic case. Gorman[7] in 1937, reviewed the literature from 1890 through 1945 and reported the eighty-fifth authentic case. Philip[8] in 1950, referred to 86 previously reported cases and reported an additional case. Stewart reviewed 212 cases in 1950 and classified them into three groups: Group I consisted of seven cases, that were reported prior to 1890 and were considered of historical interest only; Group II consisted of 139 cases, with no attempt made to classify the cases into simultaneous or coexistent bilateral ectopic pregnancy; Group III, of 66 cases, were unacceptable, as positive criteria were lacking. Stewart's suggestion that use of the word "simultaneous" be discontinued, is good, as it serves only to confuse the classification. The most recent reported case was that of Evans and Goyanes[9] in 1952. This was considered to be the one hundred-forty-second authentic case.

CASE REPORT

C. H., colored female, age 24 years, was admitted to the Greenwood Leflore Hospital at 1 p.m. on October 5, 1955. The patient was admitted for pain in the right upper and right lower quadrants of the abdomen, of two hours' duration. The onset of pain was sudden, while sitting on the porch eating watermelon. The pain was in the right upper quadrant and accompanied by nausea and cold perspiration. The patient fell back on the floor where she lay for a few minutes. There was no referral of pain to the shoulder regions. Soon afterwards, she consulted her local physician, who referred her to the hospital. The physician was impressed by the rigidity and pain in the right upper quadrant and the history of nausea while eating. There was no vaginal spotting and his immediate impression was 'acute cholecystitis.'

The last menstrual period was August 2 to 6 and was not unusual. The patient did not menstruate in June. She consulted her physician early in June and was given a 'shot.' Following this she spotted for four days and without pain. The menarche was at age 13. Her menstrual periods had been regular, every 28 days, lasting approximately four days, with moderate flow and just a little pain during the first day of each period. She was delivered of a full-term child, prior to marriage, at age 14. There was no history of pelvic infection, past serious illness or surgery. Family history and review of systems were not contributory.

Examination at the time of admission revealed a well-developed, colored female who did not appear critically ill. Temp. 99, Resp. 20, Pulse 90. The skin was warm and moist; the sclerae and mucosa were of normal color. Ears, nose and throat were essentially negative. The breasts were not tense and no colostrum could be expressed. The heart and lungs were normal to auscultation and percussion and blood pressure was 120 systolic, 80 diastolic. The abdomen was not distended, there was tenderness and muscle guarding in the right lower quadrant. The right upper quadrant was tender to palpation, but no muscle rigidity was elicited. There were no herniae or scars present, and Cullen's sign was absent. On pelvic examination, the perineum was firm and the vagina appeared normal. The cervix was normal. There was marked tenderness in the left adnexa and no palpable mass. The right adnexa felt normal and the uterine contour could not be satisfactorily outlined because of muscle guarding. The cul-de-sac felt boggy and some old blood could be expressed from the cervix. Laboratory examinations revealed: erythrocyte count, 3,360,000; hemoglobin, 9 gms.; leukocyte count, 8,750; differential count, polymorphonuclears, 79 per cent with 4 stab cells and lymphocytes, 21 per cent. The catheterized urine specimen showed a trace of albumin and 6 to 8 white blood cells per high power field. The Kahn was negative.

A preoperative diagnosis of ruptured tubal pregnancy, probably of the left tube, was made as there was more tenderness in the left adnexa, even though the right side of the abdomen was more tender and rigid to abdominal palpation.

Four hours after admission under spinal anesthesia, the abdomen was opened through a median suprapubic incision. Approximately 300 cc. of fresh blood and old clotted blood was found in the peritoneal cavity. Palpation of the tubes revealed a mass in the right tube; on inspection, there was a bluish mass approximately 2 cm. in diameter, unruptured and located in the distal third of the tube. The left tube was then delivered into the operative field, and a recent rupture was found in the mid-portion of the tube with active bleeding at the site of rupture. The uterus was slightly enlarged and in normal position. There was no evidence of old pelvic inflammatory disease. The distal half of the left tube was resected; the ends of the tube were everted with fine suture to preserve tubal patency. The right tube was then freed from the adherent omentum and the distal one-third of the tube was resected and the ends were treated similar to the left tube. The appendix was not removed. After toilet of the peritoneal cavity, the abdominal wall was closed in layers. The patient's condition during the procedure remained good. A postoperative diagnosis of ruptured, left tubal pregnancy and unruptured, right tubal pregnancy was made and later confirmed by microscopic study. The postoperative course was uneventful, and the patient was discharged on the fifth postoperative day.

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Pathological Report (by Dr. E. T. White)

The left tube is 36 x 10 x 7 mm. The right tube is 40 x 30 x 26 mm. It is filled with hemorrhagic material. Sections show an ectopic pregnancy in both tubes but of different ages. The one on the left is a recent pregnancy with young chorionic villi, in which there are nucleated red cells. The one on the right is an old pregnancy with the villi completely degenerated. This one has been present several months and after the villi died, the patient apparently began ovulation again and became pregnant on the left side.

Diagnosis: Bilateral tubal pregnancies.

Comment: This is extremely rare and the first I have seen. This would be a good case to report.

This case fulfills Fishback's criteria and fits into Stewart's classification Group II. An attempt to preserve the patency of the tubes was made because the patient was just 24 years of age and had only one living child. The patient was reexamined on February 20, 1956, and pelvic findings were normal. The patient's menstrual function had since become normally restored.

Bilateral tubal pregnancy is more common in the multigravida, with an incidence of 85 per cent to 15 per cent in the primigravida. The mortality rate from unilateral ectopic pregnancy, as reported by Jarecho[10], is 2½ per cent, while the mortality rate from ruptured bilateral ectopic pregnancy is only 3.6 per cent. Simpson[11] has stated that less than 10 per cent of patients with ruptured ectopic pregnancies will bleed to death.

Most authors recommend bilateral salpingectomy with preservation of the uterus and at least one ovary. On occasion the tubes may be resected and a plastic procedure is performed to preserve tubal patency. Stromme[12] has reported a case in which a salpingostomy was performed, the unruptured gestation sac being shelled out, and two subsequent uterine pregnancies followed. Preservation of tubal patency is especially applicable in cases of repeat tubal pregnancy which occurs in 3.4 per cent of cases[2].

SUMMARY

A case of bilateral tubal pregnancy has been presented. The importance of always examining both adnexae during laparotomy was emphasized. Bilateral salpingectomy with consequent sterilization of the patient is not always the acceptable procedure.

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DISCUSSION

Dr. Jack A. Atkinson (Brookhaven) — Dr. Sandifer has presented an excellent discussion of a very unusual condition. Although bilateral tubal pregnancy is quite rare, the incidence of ectopic pregnancy has increased rather markedly since the advent of penicillin and the sulfonamides. Many acutely inflamed fallopian tubes are being cleared up with the use of these drugs before complete occlusion of the lumen occurs. Fertility remains but because of intratubal or peritoneal adhesions, because of loss of cilia, or narrowing of the lumen of the tube, the progress of the fertilized ovum is impeded and tubal implantation occurs.

The mortality rate of ectopic pregnancy is decreasing dramatically—decreasing roughly from 12 per cent as reported by Dr. Beacham and associates in a study of well over a thousand cases in the New Orleans Charity Hospital between the years 1906 and 1937, to .38 per cent as reported by Dr. Gordon Johnson and associates in a study of some two hundred fifty cases in the same hospital between the years 1951 and 1953. The cause for the decreased mortality no doubt is due largely to the use of the antibiotics and sulfonamides and to the availability and free use of blood. I do not believe that the antibiotics are the sole factors responsible for the increased incidence of tubal pregnancy, nor do I believe that blood and the antibiotics are solely responsible for the decreased mortality rate, for as is ever the case in surgery the human factor enters in.

Our medical students and internes are being taught to keep this condition ever in mind. Essays such as this excellent one presented here today by Dr. Sandifer are serving a very useful purpose in keeping the possibility of this condition before the minds of busy practitioners of medicine and surgery. We are being alerted to the possibility of the condition. We are, therefore, diagnosing it more frequently and treating it earlier and more adequately.

There is no acute intra-abdominal condition in which the clinical history so definitely bespeaks the diagnosis as that of ectopic pregnancy. The period of sterility, the absent or delayed menstrual period, the dark bloody vaginal discharge, the sharp recurring abdominal pain, the blanched or shocked patient, are an array of symptoms not seen in combination in any other condition. Truly the patient who presents this array of symptoms is not the problem patient. It is the patient who presents only one or two of these symptoms who gives us trouble, and for this reason we must keep the condition ever in mind.

One of the most helpful of all physical signs, in my opinion, is the tender cervix. In tubal pregnancy the uterine cervix is tender out of all proportion to the remainder of the pelvis. We talk about the boggy mass in the adnexae or in the cul de sac of Douglas. Now, I can't always tell when an adnexal mass is boggy, but I can surely tell when a cervix is tender. In acute pelvic inflammatory disease, and in pus tubes, the cervix is tender, but the adnexal mass is more tender, while in an ectopic pregnancy the cervix is more tender than the adnexal or cul de sac mass. When in doubt, a culdocentesis should be done. We have seen no ill effects from this procedure. We employ cul de sac puncture routinely when tubal pregnancy is suspected. I must admit, however, that not uncommonly this procedure is carried out while the operating room is being prepared for surgery.

When the diagnosis of tubal pregnancy has been established, operation is indicated. I would like to stress the necessity of early surgery in these cases. The patient is typed and cross matched, hematocrit determination is made, blood is started, and surgery is begun. In no instance is surgery delayed for the patient to come out of shock. Such patients survive only if bleeding point or points are controlled as soon as possible and the blood loss replaced. What one does with the free intraperitoneal blood is of little consequence. It is known that the peritoneum has great power of reabsorption of foreign protein substances. However, too great value should not be placed on utilization by the body of this free blood, for if the patient is in shock she needs blood in the circulating system, and with its ready availability, blood should be freely administered intravenously.

Dr. A. V. Beacham (Magnolia)—Little need be added to what has been said. The subject has been covered completely and well. Emphasis has been placed where it belongs, namely on the rarity of the condition and the need for bilateral examination at operation.

Of 1800 cases of ectopic pregnancy occurring at Charity Hospital of New Orleans during the past 50 years, only two have been proved bilateral tubal pregnancies. The condition is indeed rare and Dr. Sandifer is to be congratulated for recognizing it.

Now as to the necessity of thorough examination at operation, in these days it is seldom, if ever, excusable not to look at the salpinx, ovary, and adnexa of the opposite side for in so doing one not only obviates the remote possibility of overlooking another tubal pregnancy but we also prevent the shameful neglect of failure to remove an early ovarian carcinoma or other pelvic pathology. These days adequate stocks of blood are available everywhere and if intravenous inflow has not been adequate to raise the pressure above shock level the simple intra-arterial injection with a 20-gauge needle into the iliac artery of as little as 100 to 150 cc. of blood will often restore the patient to a safe surgical status.

How shall I be able to rule over others, that have not full power and command over myself?—Rabelias

The Pharyngeal Manifestations of Systemic Diseases*

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In undertaking a study of my subject I was forcibly struck by the scarcity of writing on the subject of the pharynx. The very name pharynx seems to have been slighted in the make-up of the name of our specialty. We call ourselves Otologists, Rhinologists, Laryngologists, Broncho-esophagologists—but nowhere have I found any one who describes himself as a Pharyngologist. Why this should be so is beyond me; there must be some stigma attached to this important region; it is a step-child, so to speak.

The pharynx is the expanded upper portion of the alimentary canal, and extends from the base of the skull above to about the level of the sixth cervical vertebra and the lower border of the cricoid cartilage below. The cavity is partly cut in two by the soft palate to form the nasopharynx above, and the true pharynx below, the latter being subdivided artificially into the oropharynx and the laryngopharynx. The mouth, the larynx, the esophagus, the two eustachian tubes, and the two symmetrical openings of the choanae of the posterior nares all open into the pharynx, which thus serves as the common tract for the intake of food, air, and drink.

The pharyngeal mucosa consists of stratified squamous epithelium in the true pharynx, where it is subject to the most trauma; but in the nasopharynx it has a stratified columnar of cuboidal ciliated epithelium more typical of the respiratory tract.

The blood supply of the pharynx comes through the ascending branch of the external carotid, the ascending and descending palatine branch of the external maxillary, the dorsalis lingual branch of the lingual, the tonsillar branch of the external maxillary and the pharyngeal branch of the internal maxillary artery.

The motor and sensory nerve supply comes from the pharyngeal nerve plexus, formed from branches of the vagus, glossopharyngeal, and cervical sympathetic nerves. The soft palate is supplied by the palatine branch from the second division of the trigeminal nerve and the vault and lateral wall of the nasopharynx receive their innervation from branches of the spheno-palatine ganglion. The posterior surface of the larynx is supplied by the internal branches of the vagus nerve.

The lymphatic structures of the pharynx belong to the lymphoepithelium system. Their true function is poorly understood, but we believe the lymphatic structures have something to do with the production of antibodies and otherwise serve as a protective mechanism. Since virulent organisms can be found in the tonsils soon after birth, we can consider all tonsils as diseased. It is still debatable how much good the tonsils and adenoids actually accomplish, and the debate about the advisability of their complete removal still rages. The nutritional and hygienic status of patients influence the general health and hence indirectly influences the lymphoid structures of the body, especially Waldeyer's ring, including the tonsils and adenoids.

I shall not try to take up every disease in detail, but shall necessarily have to hit the high spots. Vitamin deficiencies frequently cause lesions in the mouth and throat, but I shan't discuss these conditions here.

Measles, scarletina, rubella, roseola, and epidemic flu are diseases which produce more or less typical lesions on the mucous membranes of the nasopharynx and oropharynx, but their train of symptoms and their epidemic nature make it unlikely that we as EENT men will encounter them first; more likely these diseases will be seen first by the general practitioners, and we will be called on only to treat the complications. Nor shall I attempt to include pharyngeal cancer, which might be considered a local manifestation of systemic disease.

One of the diseases which we may associate most intimately with the pharynx is of course diphtheria. This is a truly epidemic disease, but in sporadic cases we may see it first. The symptoms of pharyngeal diphtheria are sudden onset, with fever, malaise, pain, and difficulty in swallowing, and swollen tender cervical lymph nodes. In the severe cases there is chill, high fever, vomiting, and early laryngeal involvement. It may begin in the nasopharynx, with severe nasal obstruction being one of the presenting signs.

The diagnosis is made on finding a dirty gray or yellow-white membrane on an inflamed mucosa. The membrane strips off with some difficulty and leaves a red swollen and bleeding surface. The cervical glands are invariably swollen and tender.

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In the severe form the membrane rapidly spreads from the tonsil area over the pharynx and down into the laryngopharynx and larynx. There may be complicating nephritis, bronchopneumonia, and lesions of the heart muscle. The specific diagnosis rests on finding the diphtheria bacilli in smears stained with methylene blue and in cultures made on Loeffler's blood serum agar.

Fusospirochetal pharyngitis or *Vincent's angina* is an ulceromembranous inflammation, usually confined to one tonsil or the gums, but it may spread widely. The fusiform bacillus is a gram positive rod; the spirochete now classified as a treponema is a delicate form with pointed ends and irregular convolutions and is gram negative. Both forms are difficult to culture. The mere presence of these organisms is not diagnostic, but their presence in enormous numbers probably indicates the cause of the lesion present.

The process is usually confined to one tonsil or side of the pharynx. There is gradual onset of dryness, soreness, pain on swallowing, otalgia, and swollen cervical glands. A deep sloughy ulcer on the tonsil or pharynx with a soft purple-red zone surrounding it is usually found. There may be considerable gray membrane formation, and a tender cervical gland. The diagnosis is confirmed by finding of the two organisms in great numbers.

The next group of diseases we shall consider is *fungus infections. Thrush,* or *moniliasis,* is usually found in infants and poorly nourished children or in debilitated adults with a chronic wasting disease. There are white, creamy plaques on the mucosa of the mouth, pharynx, etc., which are easily removed with slight bleeding.

Sporotrichosis is a granulomatus disease, which sometimes affects the pharynx, mouth, or tongue. There are chronic cup-like ulcers of the mucous membrane, which are said to be typical.

Blastomycosis is usually a chronic skin infection, but the mouth, pharynx, and larynx may show ragged ulcers with a purulent discharge from which the fungus may be found.

Actinomycosis is an infection with the ray fungus or actinomyces. It usually begins as a nodule in the mouth, which ulcerates and discharges pus containing the sulfur granules consisting of masses of mycelia. The glands of the neck are involved, and a hard mass with numerous discharging sinuses usually forms.

It is of interest that the tremendous use of the broad spectrum antibiotics has caused an increase in fungus infections, particularly with monilia albicans. This is due to depressing the normal bacteria which keep the fungi in check. Recently nystatin has been introduced, and it has a decided fungicidal action. It is interesting to us Mississippians that its discoverer is a Mississippi girl, and a graduate of M.S.C.W.

Formerly one of the most important systemic diseases which affect the pharynx was *syphilis.* Classically we divide this into three stages. In the primary stage the uncomplicated shancre may be present on the tonsil or pillar. There may be erosion and slight soreness with redness of the surrounding mucosa. There is usually a hard swelling of the cervical glands on the affected side. Unless secondary infection occurs, the mass and glands may remain stationary for weeks. The diagnosis is suspected when we find a hard, deep ulcer which fails to respond to the usual treatment. The final diagnosis is made by dark field examination of the serum from the ulcer or enlarged gland. The Wassermann is usually not positive until the secondary stage.

In the secondary stage we may find three types of lesions—(a) A patchy erythema scattered over the pharynx, or a chronic diffuse erythema. (b) The mucous patch, which is typical, is sharply circumscribed, round, or oval in shape, about the size of a bean. The edges are slightly raised and have a bluish-gray or pearly sheen on a slightly congested mucosa. They tend to appear and disappear in crops. (c) Rarely we may see warty, gray, thickened patches or condylomata. The diagnosis is made by finding the treponema pallidum in dark field or a positive Wassermann.

The gumma of the pharynx is a localized mass; its site of election is the soft or hard palate. Untreated, it may remain as a painless mass for months, when central softening occurs and deep, crater-like ulcer forms. Perforation of the palate or destruction of the velum or tonsil pillars may occur. The ulcers may heal with much scar formation and contractures.

The advent of penicillin and the broad spectrum antibiotics has completely changed the picture of syphilis. So much so that the above description is more of academic than of clinical significance, and the chances are we will never again see the classical stages of this once dreaded disease.

Tuberculosis of the pharynx is a relatively rare disease of the pharynx. In the military type of involvement, there are multiple and widespread minute grey or yellow points in the congested and swollen mucosa of the velum, uvula, or posterior pharyngeal wall. These tubercles coalesce and break down to form spreading gray ulcers with crenate margins surrounded by a zone of inflammation. We have severe pain, dysphagia, sometimes difficulty in talking, fever, etc.

In the chronic form, the infiltration becomes ulcerated, forming grayish ulcers with mouse-nibbled margins. A tuberculoma may form in the nasopharynx. It is usually a soft, red tumor, which quickly undergoes ulceration. The diagnosis is made on finding the Kochs bacilli in the lesions or in biopsy specimens.

The lupus type is extremely chronic and may last for years. It is always secondary to a similar process in the nasal cavity. The disease appears as seed-like subepithelial nodules of gray or yellow color. There is considerable surrounding reaction. The entire process slowly changes to scar tissue, later a slow ulcerative change may occur. Tuberculous involvement of the anterior cervical lymph glands may break down and result in peripharyngeal abscess.

Streptomycin, PAS and INH, as well as some of the newer drugs, are rapidly changing the outlook of tuberculosis by arresting it early in its course. The effect upon extrapulmonary lesions is even more dramatic than in the pulmonary lesions; hence these lesions are becoming more and more rare.

Infectious mononucleosis is a sporadic disease usually seen in children and young adults, with fever, malaise, and nausea. There are enlarged tender lymph glands, particularly the cervical glands, but also of the axillary and epitrochlear as well. There is a simple pharyngitis or occasionally an ulceromembranous pharyngitis associated with it. The characteristic findings are a relative and absolute increase in the number of mononuclear white cells in the blood, and the fact that the patient's serum will agglutinate sheep red cells. This gives us the specific (Paul and Bunnell) test. The heterophile antibody reaction in a titer of 1:16 or higher is pathognomonic for this disease. This reaction may be negative in repeated tests for several weeks but eventually becomes positive. The disease is self-limiting and lasts three or four weeks, but has a tendency towards recurrence. Recently it has been felt that this is a virus infection, which is transmitted through the saliva, most often by kissing, and hence we usually see the disease in youths and young adults.

A disease entity which has recently been identified as *pharyngo conjunctival fever,* sometimes called *APC* or *adenopharyngeal conjunctivitis*. This is a disease due to the APC virus, manifested by fever, malaise, conjunctivitis, and sore throat. The fever may run as high as 104 F. The disease runs its course little affected by antibiotics or other treatment. The conjunctivitis may last from one to three weeks, the fever returning to normal usually after four to six days.

In *Herpangia* we find vesicular or apthous lesions of the pharynx, soft palate, and faucial pillars. These are very painful and there may be mild fever and malaise. A viral agent similar to the Coxsacke strain has been isolated. The disease is self-limiting, but big doses of vitamins B and C seem to help in its treatment.

Diseases of the blood often present themselves with signs and symptoms referable to the pharynx. These symptoms may prompt the sufferer to consult the E. N. T. man first, and it behooves us at least to possess an adequate knowledge of the pathologic processes involved, to be able to recognize them for what they are, so that we can refer these patients to some one for definitive treatment.

Plummer-Vinson syndrome is an iron deficiency disease seen almost exclusively in women past forty. The chief complaints are cheilitis, superficial glossitis, and pharyngitis, resulting in dysphagia of varying degree. It may be associated with premature graying of the hair and wrinkling of the skin. There is achlorhydria, splenomegaly, and microcytic anemia. There is usually pain and burning on swallowing, as the food passes over the larynx, and there may be choking.

In *pernicious anemia,* achlorhydria, pallor from the anemia, paresthesia of the hands and feet, and sore tongue are almost always present. Pernicious anemia is most frequently seen in fair complexioned people and almost never in full blooded negroes.

The onset is insidious. There is always some loss of weight; anemia is frequently the first sign; and weakness, dyspnea, anorexia, nausea, and digestive symptoms are common. Tingling and numbness of the hands and feet, or paresthesia are present early in about a third of the cases.

Of particular interest to us is the sensation of burning and soreness of the tongue. The tongue in the early stage is beefy and red. In some cases a stomatitis and glossitis is present. Later the papillae are lost and the tongue appears smooth and shiny. This atrophic change later spreads to the pharynx and esophagus. The blood shows characteristic macrocytic anemia, usually less than 2,500,000, and the color index is above 1. The reticulocyte response to liver extract, the presence of normoblasts or nucleated red cells, and the study of the cell morphology make the diagnosis for us.

Hodgkin's disease involves the entire reticuloendothelial system, affecting chiefly the lymphatic organs. Most investigators consider this disease as neoplastic in nature. The course may be acute or chronic in its progress. The symptoms are ushered in usually following an upper respiratory tract infection or the like. A painless progressive enlargement of the cervical glands is noted. In the beginning the nodes are smooth, soft, and discrete, but later they become firm and immovable. The E. N. T. man may see this patient first because of the patient's assumption that the cervical adenopathy is due to infection of the sinuses, tonsils, or teeth. He may have a distressing cough and dyspnea, or he may have Horner's syndrome. Hoarseness is common, due to recurrent laryngeal nerve involvement.

The so-called Pel-Ebstein febrile reaction is seen in about one-third of the cases. The course may be rapid or slow, and may simulate tuberculosis or undulant fever.

Polycythemia vera is a slowly progressive chronic involvement of the bone marrow, the main features of which are cyanosis and an increased number of erythrocytes in the circulating blood. The course is insidious and may exist for ten or more years before it is recognized.

For some unknown reason, the bone marrow is stimulated to tremendous activity; the red cells may number from 8 to 15 million per cu. mm. The blood volume and hemoglobin have a corresponding increase. The viscosity of the blood is greatly increased and predisposes to thrombosis.

The patient's appearance is affected by the temperature of the surrounding atmosphere: "Red as roses in summer and blue as indigo in winter." The oral mucous membrane is a deep cherry red. The pharynx presents a diffuse fiery red appearance; spontaneous bleeding is frequent. Headaches may simulate migraine and are a very frequent symptom. In some patients, cerebral hemorrhages and cerebral thrombosis may result in paralysis, aphasia, and other cerebral symptoms.

Acute leukemias are classified as to the type of cells: lymphoblast, myeloblast, or normoblast — hence we have lymphatic, myelogenous, and monocytic leukemias. This is a rapidly fatal disease, usually of young adults. There is acute swelling, followed by ulceration, membrane formation, deep necrosis, and even frank gangrene of the pharynx or mouth. There is fever, headache, prostration, a marked tendency toward hemorrhage from the gums, nose, stomach, and rectum, and purpuric hemorrhages into the skin. There is rapid enlargement of the cervical nodes, the spleen, and liver. The diagnosis is made on finding the white blood cell count increased to 20 to 100,000 cells and the finding of abnormal forms of cells in great proportion. A bone marrow biopsy will confirm the diagnosis.

Agranulocytic angina is an ulceromembranous or gangrenous pharyngitis with fever and prostration and characterized by a complete or almost complete absence of the polymorphonuclear leukocytes, or granulocytes, from the blood and bone marrow. It is frequently fatal. It is usually due to a depression of the bone marrow by some benzene ring drug, such as amidopyrene, dinitrophenol, sulfonamides, thiouracil, etc.

There is sudden onset of high fever, marked prostration and malaise and sore throat. The pharynx presents ulceration and even gangrene, but does not appear inflamed due to the lack of the natural defense mechanism. The tissues look dead and feel soft. Rapid failure of strength of the patient and death within a week is the outcome unless the patient can be supported and the infection controlled until the depressed bone marrow resumes its function, and the manufacture of granulocytes occurs again.

Metabolic diseases affect the pharynx, as they do every other organ. In *hypothyroidism* and other hypometabolic states we find certain changes are present in the pharynx. The basal metabolic rate is of secondary importance and may be misleading. The postnasal discharge and swelling in the mucous membrane may respond to the thyroid extract even when classical signs of hypothyroidism are lacking. And we have all seen cases where estrogenic substances have helped in the postmenopausal state.

A word about the *psychological aspects* of pharyngology. Hypersalivation and hyposalivation may be manifestations of a nervous instability and severe emotional disturbances. Dryness of the mouth and throat are a common complaint in depressed individuals. It has been repeatedly observed that manic-depressive patients complain of dryness of the mouth during their depressed periods.

Globus hystericus is one of the most common hysterical symptoms. It has been demonstrated that the lump in the throat sensation is due to spasm of the esophagus, which in turn may be due to functional disorder of the ninth nerve and sympathetic system. There are many complicated psychiatric and psychological explanations, but suffice it to say that we should be cognizant of this being a frequent symptom of psychic illness.

Other symptoms, such as burning sensations, paresthesias, and the like all may have a purely psychological basis and be due to sensory dysfunction of the glossopharyngeal and vagus nerves. Organic neurological disease, such as is found in diphtheritic neuritis and in bulbar poliomyelitis, hydrophobia, tetanus, tumors, meningitis, and other basal lesions may affect the sensory function of the 9th and 10th nerves, resulting in anesthesia and paresthesia. Malfunction of the motor division gives rise to spasm or paralysis and results in difficulty or inability to swallow, if the paralysis is bilateral.

In this paper I have attempted to bring home to us the effect of systemic diseases upon one small portion of our anatomy, viz.: the pharynx, and to remind us that in being good E.E.N.T. men, we must also be good general physicians and not lose sight of the effect of the general diseases of the pharynx.

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DEDICATORY ADDRESS

University of Mississippi Medical Center Scientific Dedication

JOSEPH C. HINSEY, Ph. D.
Director of New York Hospital-Cornell Medical Center
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It is a pleasure for me to be here with you on this auspicious occasion which dedicates this fine institution to the advancement of health education, research and care for the citizens of this community and for our community in the large sense of state, nation, and the world. I bring to you the best wishes and congratulations of all your colleagues in similar institutions elsewhere. The University of Mississippi Medical Center is the fruition of the hopes, dreams, plans and hard work of many people. First of all, you have a medical school with undergraduate students in the medical sciences, residents and interns, and members of the profession carrying on postgraduate medical education.

Secondly, you have a Department of Nursing which offers a diploma course leading to the R. N. degree, and after an additional year to the degree of B. S. in nursing. You are fortunate that your hospital and the city of Jackson also operate a school of practical nursing.

In the third place, you have started a department of medical technology, beginning with a group in x-ray technology and you have plans for the development of a department of physio-therapy, record library science and hospital administration.

I sincerely hope that your administration will give high priority and will find the funds for the development of a Rehabilitation Center here because of the great need of your state for this facility. I am reliably informed that there are about 25,000 disabled men and women in your state and only 1,096 were rehabilitated last year. The teaching of the prevention of disability as well as the basic philosophy of rehabilitation is needed so much in all of our health services. In no area of medical care is team-work more essential.

We congratulate the state of Mississippi for its interest and support in the advancement of the health and care of its citizens, in the provision of educational opportunities for its young people in the health sciences as demonstrated by its building this magnificent plant and providing the support to maintain it and carry on its program. I am confident that Doctor Pankratz and his staff believe they need more money and I would be surprised if they don't have plans for additions to the plant at this present moment.

We congratulate the administration of your University for its statesmanship and leadership in demonstrating the need, securing funds, carrying out the intelligent planning and bringing to completion so much of the building to meet the needs of your state. This has required real team-work because a building program of this size and unique in design is not brought to completion easily. Here on the Jackson campus this eight-story, three-wing building houses the teaching units I have already referred to, a 350-bed teaching hospital, the outpatient department, library and your research facilities. Started on the Oxford campus in 1903 where, with the exception of one year, you have operated as a two-year school until a year ago this fall. Over the years, we have been pleased to have some of your fine southern young people who have journeyed up into the North to finish their last two years with us.

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*Delivered on the occasion of the scientific dedication of the University of Mississippi Medical Center, Jackson, Miss., October 23, 1956.

We used to speak of medical schools, but now it is customary to call teaching institutions like this "medical centers." The term medical center has developed as education, research and service in the various health sciences, have elaborated and expanded and have been brought into close proximity with the medical college. Here then is an intellectual environment in which students in the various health sciences carve out their educational background, working and developing shoulder to shoulder. Not only are the educational programs in the various health sciences strengthened by having students and staffs working in close proximity in a center like this, but research thrives in such an environment. The laboratory and teaching beds are indispensable for the carrying on of the research programs essential to a center of this type. The citizens of this community will receive patient care of high quality because it is a known fact the best patient care is provided in an atmosphere of teaching and research. The search for truth and its elaboration will influence everything that is done here.

During 1952, I served on the President's Commission on the Health Needs of the Nation and was most impressed by the emphasis upon the team approach to better health and by the personal shortages in so many of the health professions. With increasing emphasis upon the total patient, the physician finds himself working with the nurse, dentist, the social service worker, the sanitary engineer, the occupational therapist, the physiotherapist, and I could go on with many more.

With the support of the Equitable Life Assurance Society, the National Health Council has published two important books: "Partners in Health" and "Health Careers Guidebook" prepared for our young people and their vocational counselors. In a census list of 77 major occupational groups, the health services are seventh from the top.

This guidebook lists 156 health career opportunities; 22 in administration of health services, 25 in basic sciences related to health, 21 in the medical professions, 12 in dentistry, 15 in nursing and related services; 6 in dietetic and nutritional services, 3 in food and drug protective services, 6 in medical technology; 3 in speech and hearing therapy, 3 in pharmacology, 6 in health information and communication, and many others. A medical center such as this must be devoted to offering educational opportunities in as many areas as can be developed with high standards. In order to effect economies, it is a temptation to overload the staff of an institution like this in an expanding program. Quality must be the watchword. It has been said that the nation doesn't need one more poorly trained doctor and the same applies to everyone of these workers in the other health fields.

In the nation as a whole, greater facilities must be afforded for the education of personnel in these many health professions. Most of our privately supported institutions do not have the financial support to undertake many of these activities. Society in the long run must depend upon publicly supported institutions like yours to create the facilities and opportunities that will be afforded in your Center.

Medical centers with their units have become intertwined into their communities and their influence is exerted at the local, state, national and international level. It is many times said that there is no such thing as a local medical school. You are to be congratulated that you have not limited your enrollment to citizens of your state but have chosen to select 6 out of state students in a class of 80. Later you may see fit to increase this quota from out of state.

In our endeavors to maintain the highest quality of health education, research and service, let us be mindful that physical facilities, while of great assistance in reaching the desired goal, are not sufficient unto themselves. The "bricks" in our temples must be inhabited by "brains" and outstanding personalities. If we add to these buildings and their equipment, an outstanding, stimulating and able staff and an intelligent, alert, curious, observant, devoted student body, it won't matter so much what the curriculum structure is. We need outstanding people — men and women in whose vessels flows the milk of human kindness and who will epitomize the art as well as the practice of medicine and the other health services.

It seems to me that the future of this institution can go in two possible directions—one leads to determination of policy by expediency, interested pressure groups can hold back progress and doggedly maintain the *status quo*. Political interference can prevent needed experiments. Service loads could occupy your staff so as to prevent creative activity.

The other leads down the path that is labelled —University of Mississippi. You are a University Center and as such your policies and program will be determined by your faculty in consultation with the University administration. You will be sensitive to community needs and will seek outside advice but you cannot brook outside interference. Your guideposts will be those set forth in the statement of policy adopted by the Association of American Medical Colleges which is as follows:

MEETING A CHALLENGE TO MEDICAL EDUCATION

The maintenance and improvement of the physical and mental health of the population are among the primary responsibilities of any nation. Health ranks in importance with other major features of the national economy, such as food supply, housing, employment, education, and industrial and agricultural production.

The level of any health service depends upon the competence of those who participate in it.

The future health of the people will depend in considerable measure upon the continuing supply of competent physicians. The education of physicians is a mutual concern of the universities, the medical schools, the teaching hospitals and the medical profession. The chief source of the supply of physicians will be the medical schools and teaching hospitals of the country.

In order that the high standards of medical education both for medical students and resident training may be maintained, it is essential that universities, the medical schools, the teaching hospitals, and the medical profession appreciate the problems created for medical education by the changing pattern of medical and hospital services, a growing emphasis on medical research and the complexity of the operation of a modern teaching medical center.

The production of competent physicians by the teaching institutions will depend upon adequate facilities, financial support, the recruitment of a sufficient number of well-prepared students and particularly the maintenance of a staff of qualified scientists and clinicians dedicated to the education of physicians.

Prepayment plans for hospitals and medical services, which have shown a phenomenal growth in the last ten years, are having a pronounced impact upon the operation and financing of those services. The cost of medical and hospital services continues to rise so that prepayment becomes more and more necessary. The growth of knowledge with consequent specialization within the profession has introduced many new problems, partly answered by the evolution of group practice, preventive medicine and emphasis upon the whole individual and family as the unit of medical care. All of these and other developments have produced considerable disruption in the older methods and forms of practice.

The hospital and medical service prepayment plans are sharply modifying an earlier concept of relying upon indigent patients in the hospital for the clinical instruction of medical students and residents. Medical education requires a satisfactory volume and balance of clinical material in order that the high level of bedside instruction be maintained. The steady diminution of ward patients will require a continuing readjustment in our approach to the use of private patients and those covered by prepayment insurance plans to insure the instruction of medical students and residents.

Adaptations of medical and hospital services to the changing economic, social and professional conditions are to be expected. They have created apprehension and fear on the part of those who are obliged to meet new situations. These are evolutionary adjustments identified with progress, although new methods, just because they are different, are not necessarily better. These changes inevitably will have an impact upon the problems of professional education.

In view of the heavy duties upon the staffs, particularly in the clinical departments, many medical schools have put some of the appointments in those departments on one or another type of full-time status in order to insure proper instruction of students, the conduct of research and the supervision of patient care. These developments have increased the effectiveness of instruction, the productivity in research and the quality of patient care in the hospitals.

The teaching institutions which have the function of preparing the future generations of physicians should be encouraged to secure the services of full-time teachers and investigators under any reasonable plan satisfactory to the staff members and the school that will strengthen and improve the quality of medical education. They should have the support of the profession, the universities, and the hospitals in their endeavors to maintain the quality of teaching which, in turn, will insure a high level of health services for the future. The teaching centers associated with medical centers should be concerned with providing patient care of the highest standard, and, in doing so in an ethical manner, they should be free from hampering regulation and censure by the medical profession. The profession and the teaching institution should work together to encourage legislation which will not restrict the teaching centers in performing their essential functions in a modern society.

In meeting the challenge, the guardian angel, the Apostle of St. John will look after you "And ye shall know the truth and the truth shall make you free." What a wonderful opportunity lies ahead for those of you here and for the students to come to seek and know the truth and, in so doing, to serve mankind.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

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HARVEY F. GARRISON, Sr., M.D. .... Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center .... Surgery

CARDIOLOGY

CONSTRICTIVE PERICARDITIS — A REVIEW AND LONG TERM FOLLOW UP OF 78 CASES

By John C. Dalton, Paul D. White, *et al*

This paper is a study of seventy-eight cases which have been followed since an original review of the first fifteen cases in 1935. The purpose of this report was to reemphasize symptoms and signs of the disease, to review the usefulness of the electrocardiogram, to discuss the role of cardiac catheterization, and to give the long-term postoperative results and to contrast the course of the operated and non-operated cases.

The classic symptoms in these cases have been dyspnea on exertion, followed by a development of abdominal swelling and ankle edema. Physical findings of hepatomegaly, and neck vein distention are the most common, but pleural effusion and paradoxical pulse are quite common. It is surprising to find from these cases, however, that only fifteen of the seventy-eight cases had a paradoxical pulse and that normal-to-wide pulse pressures were fairly common. X-ray studies on all patients were done, and again it was surprising to find that the so-called small or normal size heart is only the rule, not the invariable finding. Calcium was found in only 60 per cent of the cases, and the heart was found to be slightly enlarged in one-sixth of the cases, and moderately to markedly enlarged in almost two-fifths of the cases. Again, it was surprising to find that cardiac pulsations were considered quite normal in twenty-one per cent even after the fluoroscopist had been requested specifically to note cardiac pulsations.

Electrocardiograms were characterized by the frequent findings of low voltage of the QRS complexes, low or inverted T waves, and a striking instance of P wave abnormality. Seventy-two per cent of the P waves were either abnormally widened or abnormally notched, and in no case was there an electrocardiogram with an axis to the left of 0 degrees. Auricular fibrillation was a common arrhythmia.

Cardiac catheterization again outlined the rather characteristic findings of this condition of moderately low resting cardiac output, elevated pulmonary capillary pressure, characteristic early diastolic dip and plateau pattern in the right ventricular pressure tracing, and elevated and relatively uniform pulmonary wedge, pulmonary artery diastolic, right ventricular end-diastolic, right atrial and vena caval pressures.

Of the patients who underwent only one operation, there was about an eight per cent mortality (61 patients). In the patients who had more than one operation for the relief of constrictive pericarditis, there was a twenty-one per cent mortality (7 patients). Followup data reveal that almost fifty per cent of the patients will have an excellent result, about twenty per cent of the patients will have a fair result, about ten per cent will not be improved at all, the residual percentage being a variable factor, depending upon the number of operations done. "Excellent" was described as being able to return to normal physical activity without symptoms; "fair" was defined as definite improvement but still having complaints of moderate degree, and "failure" defined as showing no improvement whatsoever.

The files of this hospital (Massachusetts General Hospital) reveal only two cases found to have constrictive pericarditis at autopsy that were undiagnosed. Two other patients were thought to have constrictive pericarditis but it was not found at autopsy, as one of these patients had sclerodema heart disease and the other had diffuse myocardial fibrosis of unknown cause. Both of these cases simulated the clinical picture of constrictive pericarditis very closely.

COMMENT

This paper bears out in detail what many of us have recognized as typical symptoms and physical findings of pericarditis. One of the surprises, at least to me, has been the frequent finding of normal cardiac pulsations on fluoroscopy, the instance of moderate to marked cardiac enlargement in almost forty per cent of the patients, and the relative infrequency of paradoxical pulse (only 15 out of 78 cases). It is obvious that diagnosis of constrictive pericarditis depends upon evaluation of not only the clinical but the electrocardiographic, radiologic, and catheterization data.

PEDIATRICS

The Immunization of Allergic Children: Part I. Special Reference to Eczema Vaccinatum. B. A. Johnxon and S. C. Dees. North Carolina M. J. 17:304-309 (July) 1956 (Winston-Salem, N. C.).

Eczema vaccinatum is a preventable disease. Eight cases occurred in 415 cases of atopic eczema, representing about two cases of eczema vaccinatum among each 100 cases of eczema. All the patients were 5½ years of age or younger, and death occurred in the case of a 6-month-old infant. The vaccinated 5-year-old and 6-year-old pre-school and school-aged sibling constitutes the greatest single menace as a contact with the eczematous child. A vaccinated person should be considered a danger to the eczematous child until the scab from the vaccination site has fallen. The history of contact with a vaccinated person is the most valuable aid to the physician in the diagnosis of eczema vaccinatum. The authors urge adherence to the contraindications of smallpox vaccination. Persons who have a skin disease or who are intimate in contacts of a person with a skin disease should never be vaccinated.

COMMENT

This article brings to my mind the treatment of a number of allergies. There is no doubt that the authors of this article have had much experience in the treatment of allergies.

Smallpox vaccinations should never be given to allergic children. The other vaccines should be given with the greatest of caution. It should certainly not be given where the skin has been broken or where there are any sores. The precautions that we have practiced for a number of years have been adding one to three drops of adrenalin in oil to any injection of penicillin or preventive vaccines. Smallpox vaccination should be omitted with any child with a severe eczema.

SURGERY

ANOMALIES OF THE UROGENITAL TRACT

Temple Ainsworth, M.D.

This discussion shall be limited to certain aspects of hypospadias and cryptorchism with particular reference to which of these patients need surgery and the age at which surgery should be performed. Surgical techniques will not be discussed.

Hypospadias

This is a congenital defect of the urethra in which the canal terminates ventral and posterior to its normal opening. The orifice may be at any point from behind the normal site, with backward elongation of the meatus, to as far back as the perineum. Frequently the hypospadiac orifice or meatus is stenosed. The condition occurs in both sexes but predominantly in the male.

Hypospadias is one of the commonest of urogenital anomalies, its incidence being estimated from one in 1800 to one in 160. It is not an inhibition of growth but is an hermaphroditic manifestation in which the urogenital derivatives in the male develop toward the female.

Hypospadias in the male has been classified as glandular or balanitic (40 to 50 per cent) penile (25 to 30 per cent), penoscrotal, perineal or pseudovaginal (10 to 15 per cent) according to location.

BALANITIC HYPOSPADIAS. In this, the commonest form, the urethral orifice opens at the site of the frenum which in turn is rudimentary or absent. It seldom produces symptoms other than those due to a tight meatus which usually coexists. Treatment required is dilatation of the small meatus with sounds whenever practicable, but when this fails or is unsatisfactory, a modified meatotomy of the dorsal terminal urethral roof is performed. Plastic procedures in these cases are seldom necessary and are likely to be meddlesome.

PENILE HYPOSPADIAS. The urethra opens ventrally at some point between the glandular sulcus and the penoscrotal junction. In anterior penile hypospadias there is likely to be little functional disturbance in the absence of urethral stenosis; by elevating the penis, the patient can usually direct the urinary stream although there is often spraying.

PENOSCROTAL HYPOSPADIAS. The penile deformity may be extreme, the the organ being dwarfed, flattened, bent downward (congenital chordee), and it may even be attached to the scrotal raphe. The congenital chordee in these cases results from hypoplasia and fibrosis of the corpus spongiosum which exists as a dense sclerotic band and usually in G-string effect extending from the frenum posteriorly as far as the anterior portion of the penile crura. Excision of this fibrous band is the first step in the operation for correction of hypospadias following which the penis is afforded a chance to grow straight and to more normal size.

PERINEAL HYPOSPADIAS. This is characterized by thoroughly anomalous development of the genitalia; the rudimentary (clitoric) penis is often covered by a preputial hood or is engulfed in overlying bifid scrotum. Congenital chordee is extreme, the appearance of the genitalia being that of hypertrophied clitoris and labia.

DIAGNOSIS of hypospadias is usually readily made by inspection.

TREATMENT. The treatment is surgical. The primary reason for operating upon the patient with hypospadias is to enable him to reproduce, and secondly to establish normal controllable urina-tion. GLANDULAR or BALANITIC hypospadias requires only the establishment of free urinary drainage by dilatation of the external meatus or meatotomy as indicated. Interference to pretty up the end of the penis is meddlesome surgery and may even leave the meatus farther back than it was before.

PENOSCROTAL HYPOSPADIAS is usually best repaired in two stages, the initial procedure being correction of the congenital chordee by the time the child is ONE YEAR OF AGE. Later when (1) he is FOUR, FIVE or SIX YEARS OF AGE or when there is sufficient tissue locally and (2) the penis shows no chordee and is of sufficient size to carry out the urethroplasty satisfactorily, the operation is performed. The importance of early and proper correction of the congenital chordee cannot be overemphasized for, unless the organ can grow to fairly normal size and reasonably straight, there is little point in attempting to make a new canal to the tips of the glans penis.

In PERINEAL HYPOSPADIAS, the construction of the urethra can be started when the child is FOUR or FIVE YEARS OLD, building the canal up to the penoscrotal junction from which point more new canal is constructed at a later date.

Cryptorchism (entomologically hidden testicle) defines the condition of abdominal undescended testicle. It has come to be applied to all forms of the imperfectly descended testes. The organs lie extraperitoneally in the iliac fossa until late embryonic life, but just before or soon after birth the glands descend to the scrotum.

The majority of undescended testes are inguinal (70 per cent) while about 25 per cent are abdominal and the remainder are perineal, pubic or are located in other unusual positions. The condition is often bilateral but the side-incidence, right and left, is about equal. When spontaneous descent is to occur it is usually completed by the first year.

PATHOLOGY OF CRYPTORCHISM. While the malposition of the testicle is the primary observation in these cases, the most striking surgical finding is the high incidence of congenital hernia, in reported series of cases varying from 70 to 100 per cent. The cause of the congenital hernia here is the failure of the processus vaginalis to close. The detection of hernia by physical examination is of prime concern for if it is demonstrable, the condition is surgical from the start and requires surgical correction of both the maldescent and the hernia.

DIAGNOSIS. This rests largely upon findings by palpation. When (1) the testicle cannot be palpated in the scrotum or in inguinal canal, (2) there is no history of orchidectomy or testicular trauma, the organ may be assumed to be deep inguinal, retroperitoneal or intra-abdominal.

TREATMENT. The preservation of fertility is the most important consideration in the treatment of imperfect descent of the testicle. Over 90 per cent of the patients with bilateral cryptorchism are sterile after puberty but following EARLY and PROPER treatment, satisfactory testicular development generally occurs. Unless androgen or surgical therapy succeeds in bringing the testicle well down into the scrotum, aspermatogenesis becomes almost a certainty. The therapeutic course to be pursued depends upon the presence or absence of complicating congenital hernia. WHEN HERNIA IS DEMONSTRABLE, THE PROBLEM IS PATENTLY SURGICAL FROM THE START. When no hernia exists the patient should be given the benefit of endocrine therapy and here we rely upon the intramuscular administration of chorionic gonadotropin (Commercial marketing: Antuitrin "S", Follutin-S, A.P.L., and others). The dose to be given will usually be relative to the size and age of the patient. A four-year-old boy can usually be given 250 international units two or three times weekly, a ten-year-old boy 500 international units at these intervals. If satisfactory descent of the testicle is to occur consequent to hormone therapy, progress will nearly always be noted in two to three weeks and, if no benefit is evident with the administration of a maximum of 2500 international units, operation is advisable.

Chorionic gonadotropin administered for a week preoperatively is frequently technically helpful in inducing engorgement and enlargement of the structures of the cord, thereby facilitating intravascular dissection which is always a delicate and precise procedure and sometimes an extremely tedious one.

SURGICAL TREATMENT. When hormonal therapy fails to cause the testicle to descend to the scrotum and stay there, operation is demanded.

WHEN TO OPERATE. In bilateral cryptorchism, steps to correct the condition should be begun by the AGE OF THREE OR FOUR YEARS. In unilateral crytorchism one may wait until SIX YEARS OF AGE, yet EARLY operation is always preferred to LATE. By placing the testicle in its normal position, atrophy and other undesirable sequels are rendered less likely to occur. The administration of chorionic gonadotropin renders it no longer necessary to wait until puberty to ascertain if the testicle will descend because this phenomenon can be anticipated by a test series of injections of the hormone, even at the AGE OF TWO OR THREE YEARS.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

SOUTHERN MEDICAL MEETING

The Golden Anniversary meeting of the Southern Medical Association will be held in Washington, D. C., November 12-15, 1956. A large number of Academy members from every southern state will see the inauguration of a Mississippi Academy of General Practice member, J. P. Culpepper, Jr., M.D. of Hattiesburg, as President.

Two other Mississippi Academy members will address the convention: Dr. Guy T. Vise of Meridian, Chairman of the Section on General Practice, will speak on "Dehydration for the Common Cold"; and Dr. Robert J. Moorhead of Yazoo City, will discuss "Medical Needs of the Small Industrial Plant."

GETTING ACQUAINTED

This is the fourth installment of the roster of M.A.G.P. members. (Members in District I through III were listed previously.)

District IV

ACTIVE MEMBERS: Austin, Jesse W., Forest, Miss.; Berry, Perrin L., Brandon, Miss.; Brantley, Frank L., Madden, Miss.; Bane, John R., Jr., Jackson, Miss.; Crowell, Robert W., Jackson, Miss.; Dabney, W. M., Crystal Springs, Miss.; Dearman, H. B., Carthage, Miss.; Gore, Albert L., Jackson, Miss.; Howell, John B., Jr., Canton, Miss.; Ireland, Robert B., Clinton, Miss.; Jones, Warren C., Forest, Miss.; Labecki, Thaddeus D., Jackson, Miss.; Berman, Maxwell D., Jackson, Miss.

Blaine, James G., Hazlehurst, Miss.; Buck, William H., Jackson, Miss.; Cates, Robert T. Jackson, Miss.; Cavett, James R., Jr., Jackson, Miss.; Davis, Thomas M., Jackson, Miss.; Eubanks, Oscar G., Crystal Springs, Miss.; Gordon, Alex, Jr., Morton, Miss.; Hudson, Robert Percy, Utica, Miss.; Johnson, S. K., Pelahatchie, Miss.; Kennedy, C. A., Taylorsville, Miss.; Lotterhos, W. E., Jackson, Miss.; Lewis, Earl T., Magee, Miss.

McGehee, Joseph C., Bolton, Miss.; Reynolds, Ernest D., Clinton, Miss.; Suttle, William M., Jackson, Miss.; Townsend, G. G., Forest, Miss.; Werkheiser, Edwin B., Jackson, Miss.; Whitfield, Edmond L., Florence, Miss.; Walker, Ben N., Jr., Jackson, Miss.; Zeller, Raymond B., Hazlehurst, Miss.; McDonnell, T. F., Hazlehurst, Miss.; Puryear, Lamar, Hazlehurst, Miss.; Rittelmeyer, Louis F., Jackson, Miss.; Thaggard, A. L., Madden, Miss.; Turner, Luther D., Crystal Springs, Miss.; Witt, W. Johnson, Jackson, Miss.; Watson, William H., Brandon, Miss.; Wood, William M., Carthage, Miss.

ASSOCIATE MEMBER: Clark, Howard David, Morton, Miss.

HONORARY MEMBER: Pankratz, David S., Jackson, Miss.

INDEPENDENCE

As doctors, we must be ever cognizant of the fact that not only we ourselves but all other physicians are judged by our actions and remarks.

Many people pass judgment on the medical professor after having had no more than a single contact with one individual doctor. For example, a doctor has refused to make a house call, and has not taken time to explain his refusal or to refer the patient to a source of help. Immediately the whole profession is criticized. Or one physician makes a casual remark to a patient about another doctor, and the result is a misunderstanding or even a lawsuit. One could go on and on citing instances in which the public gets the impression that the sick aren't getting proper attention.

We must remember that whenever we doctors fail to give the service that is asked of us, we are opening the door to government medicine. (Jour. of Iowa State Medical Society, Sept. 1956)

NEWS BITS

William E. Lotterhos and Louis F. Rittelmeyer, both of Jackson, will attend the Clinical Session of the A.M.A., in Seattle on November 27-30, 1956. Dr. Lotterhos will attend a meeting of the GP Publication Committee, of which he is chairman. Dr. Rittelmeyer will attend a meeting of the joint Residency Review Committee for General Practice. Dr. J. P. Culpepper, Jr., of Hattiesburg, will attend the meeting as delegate from the Mississippi State Medical Association.

President A. V. Beacham, M.D., of Magnolia attended the Annual Assembly of the Louisiana Academy of General Practice last month.

Thirteen M.A.G.P. members registered for the Academic dedication of the University Medical Center on October 23-24. The following received up to 10 hours Category I (formal) credit for attending: W. H. Anderson, Booneville; A. V. Beacham, Magnolia; Maxwell D. Berman, Jackson; James E. Booth, Eupora; James R. Cavett, Jr., Jackson; Robert W. Crowell, Jackson; Oscar G. Eubanks, Crystal Springs; John B. Howell, Jr., Canton; Earl T. Lewis, Magee; William E. Lotterhos, Jackson; Louis F. Rittelmeyer, Jackson; A. L. Thaggard, Madden; and Guy T. Vise, Meridian.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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Address all material for publication to W. H. Anderson, M.D., 104 Hospitality Street, Booneville, Mississippi.

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MEDICAL CENTER SCIENTIFIC DEDICATION

The academic dedication of the University Medical Center on October 23 and 24 made an important front page in the annals of our four-year school. The scientific program was extra good. The meeting place of the assembly on Millsaps College campus was one of the nicest we have seen anywhere. The fellowship of the dinner at the Heidelberg Hotel and the atmosphere of the meeting was of searchers of truth, inspired by divine purpose to serve. The blessing was invoked by the dean of the medical school whose sincerity carried more than mere words.

Dr. Alton Bryant, toastmaster, graced his task superlatively well. The officials of the State Medical Association were duly recognized. Lieutenant-Governor Gartin delivered the welcome address with invigorating content of thought. Dr. H. C. Ricks, president of the State Medical Association, delivered a brief address, his thoughts well weighed and concisely stated. His statement that we need better prepared doctors more than we need more doctors stimulated approving comment.

The dinner speaker, Joseph Hinsey, Ph. D., director of the New York Hospital-Cornell Medical Center, addressed the group on "The University of Mississippi Medical Center and Its Objectives." His education, experience, and position lent power to his words. His address is worthy of careful reading and meditative thought. His native ability, his power of observation, and his responsibility in his field of service at this time should provoke careful study whether one agrees with all he says or not.

The Academy of General Practice was strongly in evidence at the celebration, as were many of the younger doctors. It was a great inspiration to see two hundred young students at our own four-year medical school.

One already feels a medical atmosphere on the Jackson campus at the Medical Center. We predict a steady growth for our fine medical school and we congratulate Dean Pankratz and his fine faculty.

NEW STATE BOARD OF HEALTH BUILDING

A new home for our Mississippi State Health Department is now really on its way. It will be located on the Jackson campus of the University Medical Center. It will most likely be named after the man who has done so much for public health in our state for the last three decades—Dr. Underwood. Our state is favorably known over the nation for its fine public health service. With the proper location, the health department and the medical school can be of service to each other.

GOLDEN ANNIVERSARY OF SMA

The Golden Anniversary celebration of the Southern Medical Association at Chattanooga was an inspiring occasion. It clicked off according to schedule. Dr. R. L. Sanders of Memphis was the chief speaker of the occasion. He delivered an able address on the march of medicine. Those who did not hear it will read it with interest and with profit.

An outstanding feature of the occasion was a past councilors' breakfast on the second day. The hosts were Drs. Ed Newell of Chattanooga and Councilor Chas. R. Thomas of Chattanooga. Prominent at this meeting was Dr. Kate Zerfos, daughter of the late Dr. G. C. Savage who was very prominent in the organization of the Southern.

As we recall there were seven doctors at the celebration who were present at the organization fifty years ago. They are still active, congenial, and have their faces turned to the future of medicine. Some of them had retired, others seemed a bit restless to get out and back to their practice.

The soul of Southern medicine surprised and delighted his friends with his presence—Dr. Seale Harris of Birmingham who gave everyone a big thrill. Everything considered, no other man has done as much for the Southern Medical as Dr. Harris. In research and in actual practice he has been outstanding and also as an editor and a writer. Congratulations to him and blessings upon him.

We think of hotels getting old and out of date. But you could not say this about the famous Read House. For cordial spirit, up-to-date service, and wonderful food we give praise to this hotel.

During the celebration, or the last part of it, the Tennessee Valley Medical Association was holding its annual session. The able organizer and dynamic personality in this organization is Dr. William G. Stephenson of Chattanooga. He is also vice-president of the Mid-South Postgraduate Medical Assembly.

SMA PRESIDENT

Meeting: November 12-15, Washington, D. C.

Dr. McKenzie

SMA GOLDEN ANNIVERSARY COUNCILOR'S BREAKFAST, CHATTANOOGA

Seated, reading from left to right: Dr. V. Eugene Holcombe, Charleston, W. Va., Dr. J. Morris Reese, Baltimore; Dr. Charles R. Thomas, Chattanooga; Dr. Edward T. Newell, Sr., Chattanooga; Dr. Lucien A. LeDoux, New Orleans; Dr. J. P. Culpepper, Jr., Hattiesburg; Dr. W. Raymond McKenzie, Baltimore; Dr. R. L. Sanders, Memphis; Mr. V. O. Foster, Birmingham.

First row standing, left to right: Dr. Lee F. Turlington, Birmingham; Dr. H. L. Brockmann, High Point; Dr. Kate Savage Zerfoss, Nashville; Dr. F. A. Holden, Baltimore; Dr. Henry H. Turner, Oklahoma City; Dr. Jack C. Norris, Atlanta; Dr. Harvey B. Searcy, Tuscaloosa, Ala.; Dr. W. M. Salter, Anniston, Ala.; Dr. Lowry H. McDaniel, Tyronza, Ark.; Dr. A. Clayton McCarty, Louisville; Dr. W. H. Anderson, Booneville, Miss.

Second row standing, left to right: Dr. Clifford N. Heisel, Covington, Ky.; Dr. Guy M. Francis, Chattanooga; Dr. C. P. Loranz, Birmingham; Dr. W. Kelly West, Oklahoma City; and Dr. Charles Rieser, Atlanta.

W. Raymond McKenzie

Dr. McKenzie, son of William and Jane Wiseman McKenzie, was born in Houtzdale, Pennsylvania, on February 15, 1890. Dr. McKenzie attended the public schools in Houtzdale, and entered the College of Physicians and Surgeons of Baltimore in 1911 where he received the degree of Doctor of Medicine. He immediately entered Mercy Hospital, Baltimore, for intern training and was a resident in surgery there in 1916-1917.

Following his military service, Dr. McKenzie returned to Baltimore in June 1919 to enter the private practice of otolaryngology. In 1920, he was appointed instructor of otolaryngology at the University of Maryland School of Medicine, becoming assistant professor of otolaryngology in 1927. Since 1944, Dr. McKenzie has been associate professor of otolaryngology in the same school.

Dr. McKenzie holds membership in numerous medical societies, among which are the following: the Baltimore City Medical Society, Medical and Chirurgical Faculty of the State of Maryland, the American Medical Association, the American College of Surgeons, the International College of Surgeons, the Southeastern Surgical Congress, the American Academy of Ophthalmology and Otolaryngology, the American Laryngology, Rhinological and Otological Society, and the Southern Medical Association.

Dr. McKenzie has been councilor from Maryland for the American College of Surgeons since 1945 and served as vice president of the Southeastern Surgical Congress in 1953.

Dr. McKenzie is the author of numerous articles on diseases of the nose and throat, many of which have been published in the Southern Medical Journal.

Despite a busy professional career, Dr. McKenzie has found time for a variety of civic and community activities. He has long been active in the promotion of the business life of his home city, sharing his initiative and executive ability with various civic clubs in Baltimore. In recognition of his interest and civic leadership, he was elected president of the Baltimore Convention Bureau in September of this year, the first physician to hold this strategic office in the business life of his city.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twentieth annual meeting of The New Orleans Graduate Medical Assembly will be held March 11, 12, 13 and 14, headquarters at the Municipal Auditorium, New Orleans, La.

MISSISSIPPIANS CONTRIBUTE TO PROGRAM

Presentations made by members of the Department of Surgery, University Medical Center, Jackson, Miss., at the 42nd Clinical Congress of the American College of Surgeons meeting in San Francisco, Calif., October 8-12, 1956, included:

"Body Fluid Metabolism"—James D. Hardy, M.D., Chairman, Department of Surgery.

"Pepsin In Gastric Physiology"—Albert L. Meena, J. Harold Conn, Hans Naumann, and James D. Hardy.

"Anesthesia Research-I, Comparison of 'Usual' vs. Mechanical Inflation" — James D. Hardy, John O. Dampeer, Jr., and Glace E. Bittenbender.

Panel Discussion—"Surgical Management of Duodenal Ulcer" — James D. Hardy, M.D., collaborator.

"Management of Early Burn"—Curtis P. Artz,

"A Preliminary Study of The Dynamics of Steroid Conjugation"—M. Don Turner and James D. Hardy.

"Hemoglobinemia in Surgery"—J. V. Cockrell and H. N. Naumann.

"Steroid Metabolism In Man: Minute Corticoid Output of Left Adrenal — James D. Hardy and M. Don Turner.

"Parenteral Nutrition"—James D. Hardy, M.D.

"Rupture of Bronchus" (Movie) — James D. Hardy.

"Role of A-V Nodal Blockade in Preventing Ventricular Fibrillation by Faradization" — Watts R. Webb.

"Suprapineal Recess" — O. J. Andy and J. S. Browne.

Panel Discussion — "Burns" — Curtis P. Artz, M.D., collaborator.

"The Diagnosis of Obscure Thoracic Lesions"— J. Harold Conn, M.D. (Exhibit)

"Bilateral High Thigh Amputations in Certain Paraplegics for Rehabilitation"—William R. Fain, M.D., Clinical Instructor in Surgery. (Exhibit)

ANNOUNCEMENTS

Raymond F. Mayer, M.D., and Gordon L. Mathes, M.D., announce the formation of a partnership and removal of their offices to Suite 909M, Baptist Memorial Hospital Building, 899 Madison Avenue, Memphis, Tennessee. Practice limited to urology and urological surgery.

W. S. Clifford, M.D., diplomate American Board Obstetrics and Gynecology, announces the opening of his office for the practice of gynecology and obstetrics, radium therapy at Medical-Dental Building, 214-220 West Tennessee Street, Florence, Alabama.

ANNOUNCING

The Twentieth Annual Meeting
THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

CONFERENCE HEADQUARTERS — MUNICIPAL AUDITROIUM

March 11, 12, 13, 14, 1957

GUEST SPEAKERS

Emery A Rovenstein, M.D., New York, N. Y.
Anesthesiology
Nelson Paul Anderson, M.D., Los Angeles, Calif.
Dermatology
J. Edward Berk, M.D., Detroit, Mich.
Gastroenterology
Erle Henrikson, M.D., Los Angeles, Calif.
Gynecology
Ovid O. Meyer, M.D., Madison, Wis.
Internal Medicine
Irvine H. Page, M.D., Cleveland, Ohio
Internal Medicine
Barnes Woodhall, M.D., Durham, N. C.
Neurosurgery
John E. Savage, M.D., Baltimore, Md.
Obstetrics
C. Dwight Townes, M.D., Louisville, Ky.
Ophthalmology
Don King, M.D., San Francisco, Calif.
Orthopedic Surgery
Glassell S. Fitz-Hugh, M.D., Charlottesville, Va.
Otolaryngology
Malcolm B. Dockerty, M.D., Rochester, Minn.
Pathology
Sydney S. Gellis, M.D., Boston, Mass.
Pediatrics
Karl Zimmerman, M.D., Pittsburgh, Penna.
Proctology
Laurence L. Robbins, M.D., Boston, Mass.
Radiology
Danely P. Slaughter, M.D., Chicago, Ill.
Surgery
C. Stuart Welch, M.D., Albany, N. Y.
Surgery
William L. Valk, M.D., Kansas City, Kan.
Urology.

Lectures, symposia, clinicopathologic conferences, round-table luncheons, medical motion pictures, scientific exhibits and technical exhibits.
(All-inclusive fee — $20.00)

THE POSTCLINICAL TOUR TO THE MEDITERRANEAN AND EUROPE
Leaving March 16, 1957 from New York

For information concerning the Assembly meeting and the tour write Secretary, Room 103, 1430 Tulane Avenue, New Orleans 12, La.

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The Management of Preeclampsia and Eclampsia*

JOHN C. ULLERY, M. D.†
Columbus, Ohio

DEFINITION

Preeclampsia is a toxemia of pregnancy, and is a disease dependent upon and peculiar to pregnancy. It is characterized by the presence, in varying degrees, of hypertension, proteinuria and edema. Eclampsia, in general is the development of convulsions, coma, or both, and is the terminal stage of pre-eclampsia toxemia. The serious challenge that these diseases present to the physician is emphasized when it is stated that they are collectively one of the three leading causes of maternal deaths. Estimates have been made that over 1500 maternal and 35,000 fetal deaths occur each year due to these diseases.

The ideal treatment of preeclampsia and eclampsia awaits the discovery of the basic etiological processes.

In order to understand the present-day management of preeclampsia and eclampsia it is essential to have a knowledge of the foremost theories of their origin and the pathological changes that are present.

ETIOLOGY

Many theories exist for the cause of these toxemias, chief among them being:

I. *The presence of a toxin causing fluid and electrolyte imbalance.*

In favor of this theory is the presence of edema, often an early sign in preeclampsia and eclampsia, and clinically is the result of the disturbed mechanism of fluid balance and electrolytes. Factors which mitigate against this theory are:

1. The absence of elevated venous pressure in preeclampsia and eclampsia over a normal pregnancy.
2. The serum protein decrease, which might be responsible for edema, is too slight to be the cause.
3. The renal and hormonal factors, which regulate water and electrolyte balance, show no direct evidence as being primary etiologic factors. Although excessive resorption of water and salt through the tubules of the kidney could cause the edema, this resorption is usually secondary to certain hormones. Studies done on these substances and including the female sex hormones; the adrenal cortex hormones, desoxycorticosterone, 17-ketosteroids, and adrenalcortico-trophic hormone; show no excessive amounts that are responsible for the toxemias.

II. *Dietary Deficiency* as an etiologic factor in preeclampsia and eclampsia receives support from the geographical and seasonal variations of the diseases and points to lack of protein, vitamins or certain minerals. Tompkins' work on diet in pregnancy supports this contention, but the diet deficiency hypothesis has contradictions, especially from absolute minimum diets in countries during wars and famines.

III. *Disturbed Physiology* of the liver and endocrine glands.

IV. *A maternal allergy* from a polysaccharide produced in the placenta.

V. *Uterine Ischemia*—Decrease in blood flow to decidua and placenta.

1. Local conditions supporting this theory:
   - A. Very young and very old pregnant patients
   - B. Multiple pregnancies
   - C. Polyhydramnios.
   - D. Short stature females.
2. General conditions supporting this theory:
   - A. Chronic cardiovascular disease
   - B. Diabetes
   - C. Renal Disease
3. *Ischemic Kidney*—supports theory in that it is known to produce vasopressor substances. Thus the uterine and placental ischemia produces *hormonal* substances resulting in generalized vasoconstriction. In turn, kidney ischemia forms rennin, hypertensin and angiotonin.
4. *Production of serotonin*
5. Decreased *uterine* blood flow, vascular resistance, and oxygen consumption.
6. *Microscopic evidence* of results of placental ischemia and vasoconstriction, with deposition of lipid material in vessels of decidua and presence of placental infarcts.
7. *Decrease* in cerebral blood flow, renal plas-

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*Presented before the Mid-South Postgraduate Medical Assembly, February, 1956, Memphis, Tennessee.

†From the Department of Obstetrics and Gynecology, College of Medicine, Ohio State University.

ma flow, glomerular filtration rate, and renal filtration factors.

8. *Increased resistance* of blood flow in kidney vessels: Twice as great in toxemia as in normal pregnancy and three times as great in hypertension, particularly the afferent arterioles.

PATHOLOGY

The following significant changes occur in preeclampsia and eclampsia:

1. Kidney
    a. Narrowing of lumen of glomerular capillarics.
    b. Thickening of basement membrane.
    c. Constricted afferent arterioles.
    d. Distal tubule degeneration.
2. Liver
    a. Edema
    b. Hemorrhage
    c. Periportal necrosis
3. Brain
    a. Constricted capillaries and arterioles.
    b. Hemorrhage and necrosis.
    c. Degeneration of anoxic areas.
4. Eyegrounds
    a. Constricted arterioles
    b. Papilledema
    c. Areas of Exudate and flame hemorrhages.

MANAGEMENT OF PREECLAMPSIA

The management of preeclampsia should be much the same as eclampsia, except in the latter the control of the convulsions presents a more acute phase and the prognosis is more grave. Termination of pregnancy is the most definitive treatment of this disease, but if medical treatment of preeclampsia is properly given, the pregnancy may be prolonged with decrease in the occurrence of eclampsia and lowering of maternal and fetal deaths.

As is true in the treatment of all medical diseases of unexplained etiology, the therapy has been quite varied, usually symptomatic and empirical. Newer drugs in use today, approach the treatment on a more rational physiologic-pathological basis. It may be truly said, however, that the only successful treatment of these toxemias is prevention, and the therapy cannot be satisfactorily discussed without emphasizing the preventive factors.

PREVENTION OF PRE-ECLAMPSIA

1. "Hygiene of Pregnancy" (prenatal care)
2. Highest nutritional status
3. Physician alertness to abnormal symptoms and signs.
4. Prevention of anemia.

The hygiene of pregnancy constitutes our ever vigilant education and insistence upon teaching the laity the maintenance of good general health at all times: 1. Special emphasis must be concentrated upon the gravid woman of the value of early and continued prenatal care; 2. The importance of an adequate diet to keep in positive nutritional balance. This is best accomplished by a high protein, adequate vitamin ingestion, an ample fluid intake, moderation in the use of salt, and an orderly weight gain throughout pregnancy. The gain in weight throughout pregnancy should be 18-22 pounds, with the optimum being one pound per month in the first trimester, four pounds per month during the second and two pounds per month during the last, or third trimester. 3. The physician must be constantly on the alert to detect minimal indications of trouble, such as beginning nutritional deficiencies, hypo or hypertension of the systolic or diastolic pressures, and excessive weight gain between frequent prenatal visits. 4. During this period, too, constant attention must be directed toward the prevention or treatment of anemia. Determinations of the hematocrit, or hemoglobin and red blood cell counts, should be made at least during each trimester of pregnancy.

These factors are the only successful ones in treating preeclampsia, namely by *prevention.*

It is not without dangers to classify preeclampsia as "mild" and "severe," as each individual case can potentially convulse at any stage of the disease. Each patient that presents first signs of excessive weight gain of five pounds in one week and edema of the hands and face, or a hypertension of 140 mm. Hg. systolic and/or 90 mm. or above diastolic, or an elevation over their normal pressure of 30 mm. systolic and/or 15 mm. diastolic in two readings on successive days should be hospitalized for study, prophylactic treatment and clinical evaluation.

On occasions, however, less than the ideal can be attained in medicine, and you, as general practitioners cannot always hospitalize your patients at once, due to certain facilities, economic or social causes. For this reason the following outline of therapy is given on the "mild" and "severe" classification of pre-eclampsia, bearing in mind its inherent dangers:

I. "MILD" PRE-ECLAMPSIA

1. Home Care
    Observation for 24-48 hours, with bed rest, and careful check of blood pressure.

2. Diet.
   High protein, low calorie and salt intake.
3. Elimination.
   Attention to bowels, catharsis as indicated.
4. Diuretics.
   The use of ammonium chloride, one gram four times a day or Diamox 250 mg per. day.
5. Treatment of anemia.
6. Sedation.
   The use of phenobarbital, grams one-half, three times a day, may be recommended.

II. "SEVERE PRE-ECLAMPSIA

If the improvement of the patient on the above regime does not occur within 24-48 hours the disease should be considered to be one demanding hospitalization.

1. Hospital Care
   Moderate sedation for evaluation may be given on admission, such as morphine sulfate, grains one-fourth, hypodermically.
2. Bed rest (absolute)
   Hypertension may be relieved by this measure along and will often increase diuresis.
3 Blood Analysis
   Coupled with a complete physical examination, including neurological and eye ground studies; blood urea nitrogen; blood uric acid; complete blood count, total serum proteins, and daily urinalysis should be done.
4. Re-establish fluid balance
   Limitation of fluids, low salt, high protein diet, with an intake-output chart, and daily weight records are indicated.
5. Diuretics
   The bed rest, and low salt, high protein diet may be sufficient for diuretics. Ammonium chloride or Diamox may be added.
6. Treatment of Vaso-constriction.
   If the hypertension is severe on admission, and the condition appears grave, antihypertensive drugs may be started at once; or if the above regime does not produce a response in 48-72 hours, these drugs for the relief of vasospasm are indicated.

A. GANGLIONIC BLOCKING AGENTS
   1) Hexamethonium
   2) TEAC (Tetraethylammonium chloride)
   3) High Spinal Anesthesia - Regional Block
   4) Continuous Caudal

Action—Block sympathetic vasoconstrictor impulses at the ganglionic level. (Less effective in the preeclamptic and eclamptic patients than in normal pregnancy or essential hypertension associated with pregnancy. They may produce postural hypotension, reduce renal blood flow and glomerular filtration rate)

B. SYMPATHOLYTIC AGENTS
   1) Priscoline

Action—Primarily upon the anatomic nervous system. (Ineffective)

C. CENTRAL ACTING AGENTS
   1) Apresoline (Hydrozinophthalazine)

Action—Central nervous system: hypoahalamus and vasomotor centers, blocking adenergic activity and inhibits production of humoral pressor substances. Also causes renal vaso-dilatation and resulting increased renal flow.

   2) Veratrum Compounds

Action—Central nervous system producing general vasodilation. (The details of antihypertensive treatment of preeclampsia are the same as listed below in eclampsia)

INTERRUPTION OF PREGNANCY

Dependent upon: 1. Duration of pregnancy
2. Response to treatment

If the patient is at/or near term and has become stabilized by treatment, and if the indications are present for induction plus safe and successful vaginal delivery, the membranes are ruptured. Intravenous Pitocin may supplement the induction. Cesarean section may be necessary in certain cases.

When the prematurity is great (except severe toxemia complicating hypertensive disease) and the acute preeclampsia is controlled, the prognosis for infant survival is increased to postpone delivery until the 35th or 36th week of pregnancy. Local or regional blocks are the preferrable anesthesias for delivery.

POST-PARTUM CARE

Sedation or continued anti-hypertensive drugs can be used. Rest in bed for 48-72 hours is advised, with careful observation and examination of the blood pressure and pulse. Signs of lethargy, perspiration and shock may be indicative of the "low salt syndrome." Treatment is intravenous 3 per cent saline solution.

The cardiovascular and renal systems should be evaluated postpartum for prognosis of possible future pregnancies.

MANAGEMENT OF ECLAMPSIA

The management of eclampsia may be divided into three parts:

I. PREVENTION
II. MANAGEMENT OF CONVULSIONS
  2. Therapeutic Principles
  2. Therapeutic Measures
  3. Supportive Measures
III. INTERRUPTION OF PREGNANCY

PREVENTION. Just as in preeclampsia, the preventive factors cannot be over-emphasized in eclampsia as they are the only therapy for absolute control. They are listed again due to their importance:

1. Hygiene of Pregnancy (Prenatal Care)
2. Highest Nutritional Status
3. Physician alertness to abnormal symptoms and signs.
4. Prevention of anemia

MANAGEMENT OF CONVULSIONS. 1. Therapeutic principles:

In the therapeutic management of the convulsions of eclampsia we feel that our attitude should always be that every case should be considered as "severe," and that the lives of the mother and baby are in serious jeopardy. Only by this outlook can the extremely critical nature of the disease be brought into proper perspective.

Immediate treatment consists in control of convulsions and coma. Conservatism should be practiced to meet the individual problem. No immediate attempt at delivery should be made, and confusion and experimentation should never be present.

Thus, certain therapeutic principles are necessary for the safe and successful control of convulsions. They are: 1) Vigilant observation of each eclamptic patient throughout the entire course of therapy. This includes constant nursing care and physician attendance to observe the changing status of the patient; 2) therapeutic measures should be given to each patient on an individualized plan, selecting the best drug or combinations of drugs for each patient in the course of the disease; 3) All details must be carefully attended to achieve successful treatment. 4) Prevention of overtreatment.

2. Therapeutic Measures: Divided into three groups: sedatives, antihypertensives, regional nerve blocks.

A. *Sedatives.* The use of sedation to control the convulsions of eclampsia is derived from the Stroganoff-Tweedy or Bogen methods. These usually combine the use of opiates, barbiturates and magnesium sulfate. The advantages are few in number, but importantly, they can control convulsions. Also by the combinations mentioned, smaller doses of each can be given and undesirable effects are minimized. The disadvantages of sedation methods are: 1) the toxicity of the drugs, with the decrease in cerebral blood flow and glomerular filtration rates, causing anoxia, oliguria and anuria to the mother, and anoxia to the baby.

The technique for the sedation control of convulsions is: administration of morphine sulfate, one quarter grain (15 mg.) hypodermically. At the same time, either sodium amytal 0.25 gm. or phenobarbital sodium, 0.3 gm. are given intravenously. If the convulsions are still present or hyperexcitability is extreme at the end of thirty minutes, magnesium sulfate is then given, either by injecting intramuscularly 10 cc. of 25 per cent solution or the use of the intravenous drip method. If, in spite of these measures, convulsions persist, sodium amytal, 0.25 gm. is repeated intravenously, or morphine sulfate is repeated in doses of 10 to 15 mg. Continued sedation is generally in the form of phenobarbital sodium, .09 to 0.3 gm., to control restlessness.

B. *Antihypertensive Drugs.* During the past several years the use of antihypertensive or hypotensive drugs has gained increasing prominence in the management of eclampsia and control of convulsions. Their use is directed toward relieving the intensive vasospasm present and preventing the damage that it might inflict. The advantages of this method of therapy are: 1) Lowering the blood pressure and thus relieving the tension within the vascular system; 2) eliminating the necessity of using large amounts of sedation and thus preventing anoxia to both mother and baby; 3) almost all maintain normal visceral circulation and function by increasing cerebral blood flow and glomerular filtration rates. The disadvantages are: 1) They are contra-indicated in patients with falling blood pressure because of the severity of the disease; 2) convulsions may continue in eclamptic patients where visceral decompensation or cerebral hemorrhage has occurred, even with lowered blood pressure; and 3) nausea and vomiting may be severe.

There are three types of antihypertensive drugs used in the control of convulsions of eclampsia: 1) Vasodilators — (veratrum, viride, unitensen, verentoral, etc.); 2) central acting drugs—apresoline (hydrozinophthalazine); 3) regional nerve blockade drugs (regional analgesias, caudal, spinal). The combination of vasodilation with the use of veratrum preparations and the central acting drug, apresoline, offers certain advantages to us over the use of veratrum drugs alone, in that apresoline does not interfere with kidney function and brings about early renal vasodilation and increased urinary flow. Also, there seems to be less nausea and vomiting when the drugs are used in combination, rather than when veratrum is used alone.

The technique used is as follows: 1) Twenty milligrams of apresoline and five milligrams of veratrum viride (unitensen) are placed in 500 cc. of a 20 per cent glucose-distilled water solution, the mixture being attached to one inlet of a Y tube. 2) A solution of 20 per cent glucose-distilled water is attached to the other inlet of the Y tube. 3) The vasodilator mixture is started as an intravenous infusion at the rate of 20 drops per minute. 4) Blood pressures are taken before the solution is given, to obtain a base line, then every five minutes for the first three hours after the infusion starts. Readings are recorded every 15 minutes thereafter. 5) The flow of the vasodilator infusion is regulated as necessary after each reading to insure the maintenance of blood pressure at a steady level of 120-140/60-90. 6) The systolic blood pressure should be maintained at least at a level of 100 mm. Hg. or above. If it falls below 100 the infusion is stopped temporarily and the plain glucose-water mixture is substituted until the pressure returns to the desired level. 7) Pitocin mixture may be added if and when induction is desirable.

The use of regional analgesia, such as continuous spinal or caudal analgesia, also exerts a favorable antihypertensive effect. The advantages of these regional methods are: 1) Eliminates the necessity of using large amounts of sedative drugs and thus 2) prevents anoxia to the mother and child; 3) reduces hypertension, convulsions and irritability index; 4) increases, by maximum vasodilation, the capacity of the vascular bed of the lower extremities, and thus diminishes the possibility of left ventricular failure and pulmonary edema; this eliminates need for phlebotomy; and maintains blood pressure at proper levels; it also provides a temporary denervation of the adrenal glands, with a corresponding diminution in the manufacture of endocrine vasospastic substances; 5) offers effective control of pain if labor supervenes or is induced, or if Caesarean section is performed.

The disadvantages of regional nerve block are: 1) The method requires skill in the knowledge and application of regional nerve block, and one who thoroughly understands the underlying anatomy and technique. The indications and contraindications must be known and understood and the procedure requires constant attention and alertness; 2) regional nerve blocking methods do not relieve the increased vascular tone of the kidney even when the hypotensive response is induced. 3) Pooling of blood in lower extremities tends to increase tissue hypoxia.

Technique of Regional Nerve Blocking for Eclampsia: In either the continuous caudal, spinal, or lumbar epidural nerve blocks, the ureteral or plastic catheters are preferred over the indwelling needle technique, due to the comatose, or semicomatose, irrational and convulsant patient. An experienced technician in the method is an absolute necessity due to the need for careful adjustment of individual meticulous dosages, the maintenance of slowly and evenly reduced blood pressures, and an understanding of the altered vascular physiology superimposed on mother and baby during the period of therapy.

The start of the method is usually made by giving 15 mg. of morphine sulfate hypodermically, and sodium amytal 0.25 gm. intravenously. In continuous caudal, 8 cc. of 1.5 per cent metycaine is injected into the caudal canal as a test dose. After 5 minutes of observation, with no evidence of spinal anesthesia, an initial dose of 22 cc. is administered. As the blood pressure falls, the level of cutaneous analgesia is maintained between thoracic 8 and 10 levels. Usually 20 cc. of metycaine solution is given every 45-50 minutes to maintain this level, along with careful check of the systolic blood pressure. This technique is carried on over a period of hours or days as necessary for the relief of the convulsions and improvement of the patient's condition. At the same time supportive measures as listed below are included in the therapy. Termination of the pregnancy is advised as soon as feasible with continued nerve block.

3. SUPPORTIVE MEASURES

In support of the therapeutic techniques to control convulsions certain other measures must be instituted simultaneously. They are directed toward restoring the general condition of the patient to where the earliest termination of pregnancy can be accomplished with decreased dangers to mother and child.

A. Bed rest in a quiet darkened room to remove all external excitement and stimuli that might promote further convulsions. Previous medications are carefully checked by history from relatives or physicians in attendance with the patient, to reduce the hazards of additional anoxia. Steps are also taken to protect the patient against injuries or falls during the convulsive periods, with the use of bed guards, mouth gags and dull forceps to prevent the tongue from falling back and nterfering with breathing.

B. A suction apparatus with catheter attached is used, as needed, to aspirate oral blood, mucus, or vomitus.

C. Pure oxygen is available for immediate use with an oxygen tent or nasal catheter, to help in preventing pulmonary complications.

D. A Foley catheter is placed in the bladder to measure urinary volume, and a complete urinalysis is performed.

E. Blood is withdrawn for chemical analysis as well as typing and cross-matching since transfusions may be required for other complications that may arise.

F. Measures must be instituted early to promote diuresis and to re-establish fluid balance. Intravenous glucose and water are given to all patients. Usually 2000-3000 cc. of 5-10 per cent glucose is given the first twenty-four hours along with B-complex and ascorbic acid. Soluble protein is also added, especially if hypoproteinemia is present.

G. Fluid balance. The injudicious use of large quantities of fluid may cause acute cardiac failure and pulmonary edema. Our approach to the amount needed after the first 24 hours is to administer an amount of glucose and water equivalent to the amount of urinary output of the previous 24 hours plus 1500 cc.

A limitation of 2500-3000 cc. daily is set.

H. The use of digitalis therapy has been advocated as a prophylactic measure against acute cardiac failure and pulmonary edema. This may be used as an adjunct, but we are of the definite belief that with the institution of vasodilator drugs or regional analgesia therapy the possibility of the occurrence of these complications is minimal and digitalis is usually not needed.

I. Tracheotomy has been used in laryngeal obstruction and edema of the glottis. We have no experience with this procedure.

TERMINATION OF PREGNANCY

A. The optimum time for the termination of pregnancy occurs after the period of convulsions has been controlled, the blood pressure lowered, and when diuresis and fluid balance have been promoted and re-established. During this delay in the induction of labor, time is often gained for the development of the "ripe" cervix. From both the maternal and fetal standpoint the chances for survival are better if the mother has recovered from the acutely toxic state and the effects of any sedation she may have received.

B. Choice of Method. Most women with eclampsia should be delivered vaginally, as better results are obtained than in the performance of Caesarean section for termination. Experience has shown that these patients are bad risks for abdominal delivery, due to the condition of the vascular system, the kidneys, the liver, and the tendency to shock and infection.

The first choice of the method of termination depends upon several factors:

1. Duration of pregnancy
2. Presence of complications, such as disproportion.
3. Whether the patient is in labor.
4. Condition of the cervix and station of the presenting part.
5. Severity of the disease.
6. Skill of the obstetrician.

If the presentation and position are favorable, with no existing disproportion, and the cervix is favorable, induction can be started by rupture of the membranes and/or intravenous pitocin. In some patients, even though the cervix is long, thick and undilated, daily priming of the cervix for several days, if time permits, by intravenous pitocin will often produce favorable results with the onset of labor.

In certain instances Caesarean section is indicated in eclampsia:

1. Disproportion.
2. Nullipara in late pregnancy, with long closed cervix and indications of deteriorating condition of the patient.
3. When the eclampsia is so severe that coma and cyanosis are deep and the disease has not responded to treatment.

C. Anesthesia. In all cases regional or local anesthesia methods are the preferred agents to be used as anesthesia for delivery.

SUMMARY

The etiology of preeclampsia and eclampsia is unknown. Until the cause or causes are known, their management must be on an empiric or symptomatic basis. The only specific therapy is prevention.

Certain therapeutic principles and measures should be formulated to control these toxemias and to restore the health of the patient when pregnancy termination is feasible.

The therapeutic measures may be the use of sedative drugs, anti-hypertensive drugs, regional induction analgesia, or their combinations. The advantages, disadvantages and technique of each method are given. Their choice must be made on an individual basis to each patient, the physician's experience, and the length and severity of the disease. The anti-hypertensive drugs seem to offer, at the present, an improved method for control of convulsions and restoration toward normal physiologic processes to the patient.

Certain supportive measures are also included which are equally important in treatment. The dangers of "over-treatment" should always be emphasized.

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FROM 1886

We just happened to be thumbing through a copy of the Transactions of the Mississippi State Medical Association of 1886 left to us several years ago by Dr. C. Kendrick. Dr. J. B. Gresham presided as president that year. Dr. R. S. Toombs of Greenville was elected president. At this meeting Governor Robert Lowry gave the welcome address, Dr. P. W. Rowland was elected assistant recording secretary, Dr. W. A. Evans was recommended for membership in the association. The meeting was held in the House of Representatives in Jackson and it was the nineteenth session of the association.

Governor Lowry was made an honorary member of the association and an effort was made by Dr. J. M. Taylor to have a permanent meeting place for the association each year. This was recommended by the president. This pertinent question is still before our association.

From the President's address: "For the benefit of man in his journey through life, no other profession has done so much as that of medicine. No physician can ever rise to great usefulness who holds his profession as a merchant holds his goods, to be sold for the money it will bring. The physician should warn the people of all causes which give rise to disease."

The Surgical Treatment of Mitral Stenosis Experiences Obtained with Twenty-Five Cases*

RUSH E. NETTERVILLE, M.D.†
and
GEORGE GILLESPIE, M.D.†
Jackson, Miss.

THE OUTLOOK for patients with mitral stenosis due to chronic rheumatic valvulitis was greatly changed with the advent of the surgical relief of this condition. The modern operation evolved as a result of the pioneer work of Bailey and his associates[1,2], Harken and his group[3,4], and Brock of England[5,6]. This procedure has become an established, relatively safe and well standardized operation permitting definite relief in many cases of mitral stenosis. Patients who formerly were made cardiac invalids early in their productive years may now be returned to work. The condition is not completely cured but sufficient improvement is obtained to increase the exercise tolerance and life expectancy in over 80 per cent of the cases.

This paper is based on experiences with 25 cases of mitral stenosis treated surgically. In selecting cases for surgery the services of a cardiologist who is familiar with the surgical potential in these cases is indispensable. He plays a major role in determining which cases are best fitted for surgery.

SELECTION OF PATIENTS

Age: The patients in this series varied in age from 18 to 56 years. Nineteen of the 25 cases were between 23 and 40 years of age. Patients are usually over 20 years before the stenosis progresses sufficiently to produce symptoms.

The symptoms of cardiac failure in the young patients with rheumatic heart disease are often due to rheumatic myocarditis. Rheumatic activity is a definite contraindication to surgery. A careful study in the younger patients is indicated to avoid those cases with rheumatic activity and those cases with congenital anomalies mistaken for mitral stenosis.

With the exception of one case, the patients over 40 years tolerated surgery well. This patient, age 56, expired 36 hours after surgery because of hepatic and renal failure. Autopsy revealed marked chronic passive congestion of the liver (nutmeg liver), small contracted kidneys bilaterally due to arteriolonephrosclerosis and an infarction of the left kidney.

The upper age limit of the patient is based more on the physiological age of the patient than the chronological age. Patients who have marked functional impairment of liver, kidneys and lungs will not be as good risks as the less advanced cases.

HISTORY: Only 17 of the 25 cases gave a definite history of rheumatic fever. There was nothing in the history of the other eight to suggest rheumatic fever; it is assumed that these had such a mild case that it was not diagnosed at the time. A few cases became symptomatic immediately following the acute episode and the symptoms progressed until relieved by surgery. In most cases the symptoms came on from two to 18 years following an acute episode.

The following have been considered indications for surgery:

a. Progressive dyspnea on exertion
b. Hemoptysis.
c. One or more attacks of pulmonary edema.
d. Arterial embolism.

Asymptomatic patients have not been considered candidates for surgery.

VALVULAR DEFECTS[7,8]: The ideal candidate for surgery is the symptomatic patient with pure mitral stenosis. Even the presence of a mild or moderate degree of mitral regurgitation is no contraindication to mitral commissurotomy provided the stenosis is the dominant lesion. In this series ten patients were found to have slight (1 plus) and four moderate (2 plus) mitral regurgitation at surgery. One patient had 3 plus mitral regurgitation. He was the last patient operated upon and sufficient time has not elapsed to evaluate his result.

Examination of the patient with mitral stenosis reveals a sharp or snapping quality to the first sound at the apex. A mid or late diastolic rumbling murmur is heard. Usually there is a presystolic accentuation of the murmur. A localized diastolic thrill can be felt over the precordium. The pulmonary second sound is loud. The presence of a systolic murmur is often found in pure mitral stenosis. Auricular fibrillation is no contraindication to surgery if controlled by digitalization. Eight patients in this series were fibrillating at the time of surgery.

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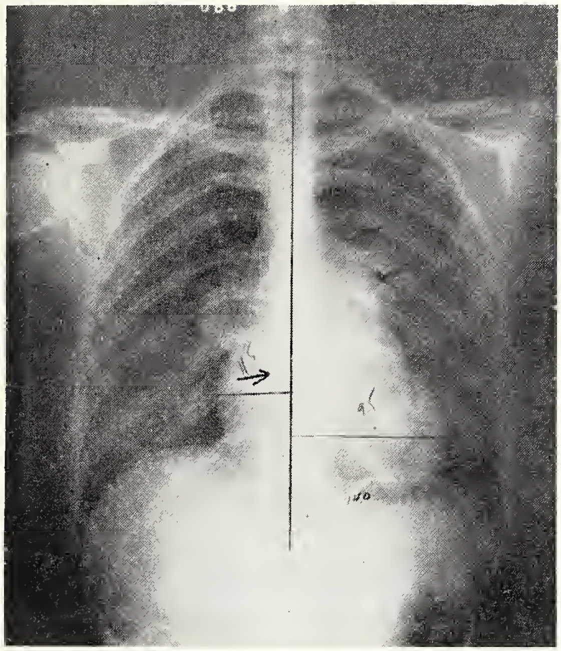

FIGURE 1. Erect posterior-anterior view of chest in patient with mitral stenosis. The two arrows on the patient's left point to the enlarged pulmonary conus. Just below is the enlarged left atrium. The arrow on the right indicates the displacement of the esophagus to the right by the enlarged left atrium.

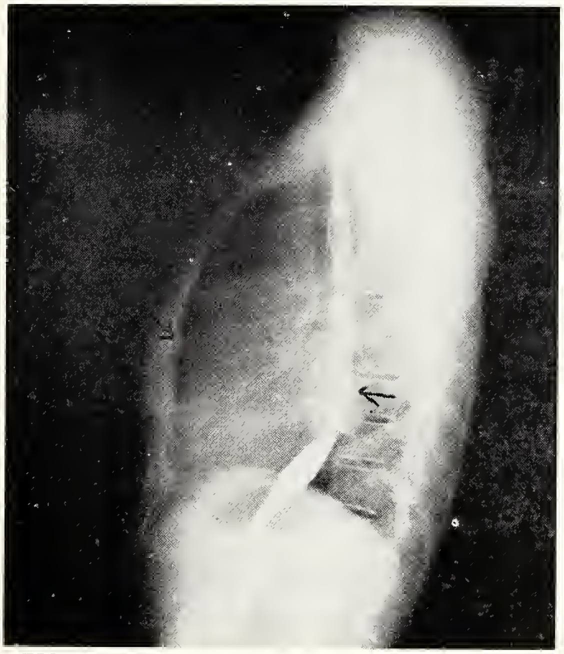

FIGURE 2. Lateral view of chest in patient with mitral stenosis. Note the displacement of the esophagus posteriorly by the enlarged left atrium. The enlarged pulmonary conus (at arrow) and the right ventricle below arrow makes the heart hug the lower sternum.

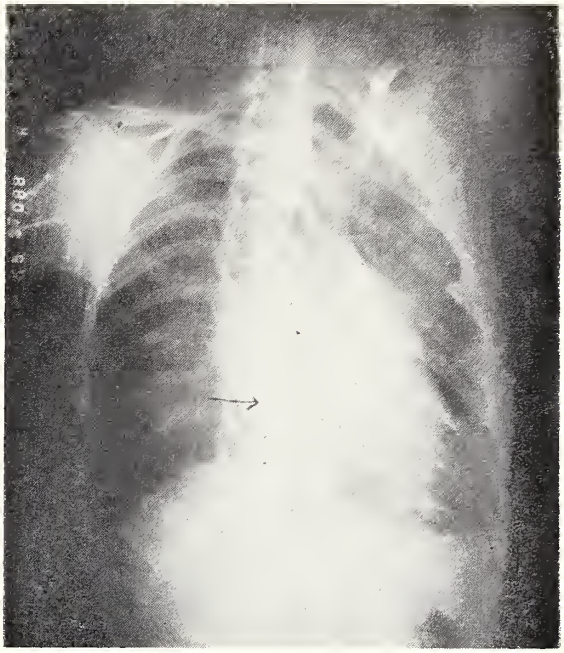

FIGURE 3. Right anterior oblique view of chest in patient with mitral stenosis. Note enlarged left atrium.

X-RAY: X-rays made in the posterior-anterior, lateral and right anterior oblique views reveal slight to moderate enlargement of the left atrium, pulmonary conus and right ventricle (Figure 1, 2, 3). If calcium is present in the mitral valve it can usually be seen at fluoroscopy.

Electrocardiograms usually reveal right axis shift or normal electrical axis. The presence of a left axis shift is not acceptable.

CONTRAINDICATIONS TO SURGERY: Acute rheumatic fever is considered a contraindication to surgery in these cases. Patients who have had recent attacks of acute rheumatic fever are much more likely to have a flare-up following surgery. Those who have an acute rheumatic episode following surgery for mitral stenosis have a prolonged convalescence and results are usually very poor. It is best if possible to allow a lapse of several years after an attack of acute rheumatic fever before surgery is attempted. However, it is admitted that some cases may be of such an emergency that the ideal situation cannot be attained. People with recent attacks of rheumatic fever are very poor candidates for surgery. The myocardium is weakened by the disease and may not stand the additional strain.

The second contraindication for surgery is subacute bacterial endocarditis. After it is brought under control with an adequate period of antibiotic therapy the patient may be submitted to surgery.

The third contraindication for surgery is intractable acute heart failure.

The fourth contraindication to surgery is moderate or severe left ventricular enlargement due to associated valvular lesions.

PREPARATION OF PATIENTS FOR SURGERY

All patients are digitalized if they are not already on digitalis, because it is believed that with this chronic valvular condition, the myocardium will be better prepared for the surgery. Daily weight should be recorded and mecurial diuretics should be given when indicated until the dry weight is obtained. These people are usually on a low salt diet when they present themselves for surgery and this is continued.

TECHNIQUE OF OPERATION

The services of a skilled anesthesiologist are essential to the success of this procedure. A quiet induction of anesthesia is important. The anesthesia, usually ether, is kept light throughout the operation. Blood should be replaced as it is lost and as a rule from 500 cc. to 1000 cc. are needed.

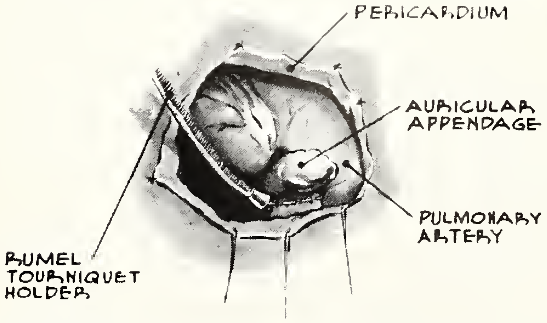
PERICARDIUM
AURICULAR APPENDAGE
PULMONARY ARTERY
RUMEL TOURNIQUET HOLDER

FIGURE 4. Purse string placed about auricular appendage.

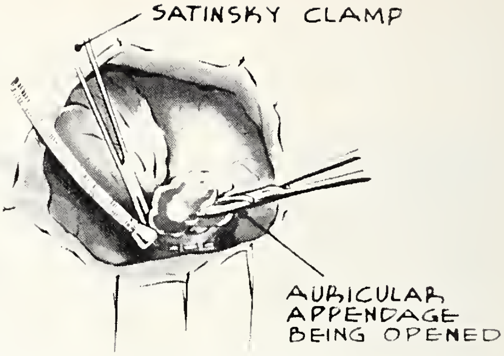
SATINSKY CLAMP
AURICULAR APPENDAGE BEING OPENED

FIGURE 5. Auricular appendage being opened.

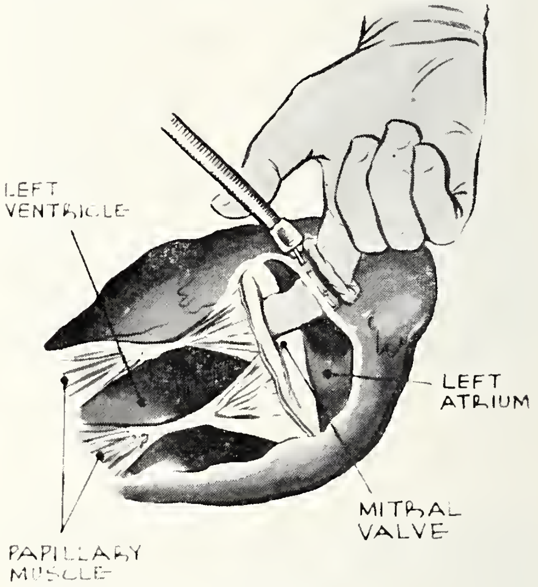
LEFT VENTRICLE
LEFT ATRIUM
MITRAL VALVE
PAPILLARY MUSCLE

FIGURE 6. Finger in mitral valve.

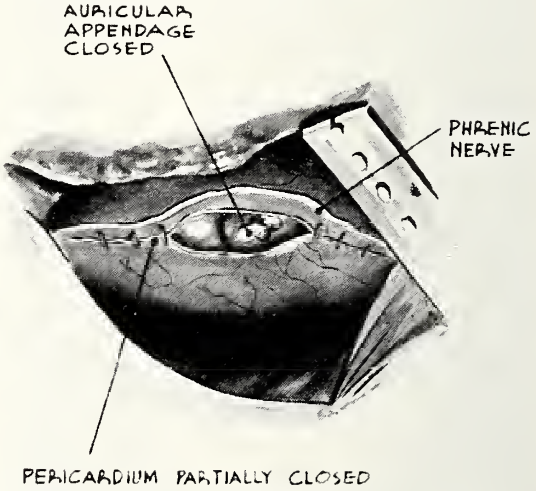
AURICULAR APPENDAGE CLOSED
PHRENIC NERVE
PERICARDIUM PARTIALLY CLOSED

FIGURE 7. Closure of pericardium.

The patient is placed in the right lateral position on the operating table. The left pleural cavity is entered through the fourth intercostal space with a posterolateral incision. The pericardial cavity is entered either just anterior or just posterior to the phrenic nerve and the incision is made in the pericardium from the arch of the aorta down well on the ventricle. A No. 1 silk purse string is placed about the auricular appendage (Figure 4). A Satinsky clamp is then placed on the auricular appendage just posterior to the purse string, care being taken not to injure the coronary artery in the atrioventricular groove. After application of the Satinsky clamp, the tip of the appendage is removed (Figure 5). The trabeculations which traverse the atrium at this point are divided so that free access to the cavity can be obtained. As the clamp is removed the index finger is inserted into the atrium and the purse string is tightened to prevent blood loss. The left atrium is carefully explored for evidence of congenital anomalies, for the presence of thrombi and then the valve leaflets are palpated to determine the amount of stenosis and the presence or absence of calcification and/or mitral regurgitation. The finger is then introduced into the mitral valve (Figure 6). This is carefully done and usually the mitral valve leaflets will open when pressure is placed upon them with the index finger. When a good finger fracture is obtained, the valve leaflets can be left to give at this time. Some of the leaflets are so densely adherent that they cannot be separated by the pressure of the finger alone and then a knife has to be used. If a knife is necessary either the Bailey-Glover-O'Neill guillotine knife, the Harken Valvulatome or the fingernail knife is used.

The knife is first used in the anterolateral commissure and usually a sufficient opening can be obtained by cutting this commissure; however, if a sufficient opening is not obtained, the posteromedial commissure is cut with a little more trepidation than the anterolateral. After a good separa-

Case #	Date of Operation	Name	Hospital	Sex	Age	Cardiac Rhythm at Time of Surgery	Preoperative Embolism	Knife Used	Mitral Regurgitation	Valve Calcified	Postoperative Complications	Results
1	12-2- 52	R.P.	V.A.	M	46	Reg	None	Yes	No	No	Sl.bleeding from known pre-existing duodenal ulcer on 11th P.O. day	Good
2	4-1- 53	W.C.S.	Bapt	M	38	Reg	None	No	+ +	Yes	None	Excellent
3	8-12-53	J.A.	Bapt	M	30	Reg	None	Yes	+	Yes	None	No Improvement Expired 7-12-55
4	9-23-53	F.C.	Bapt	M	25	Aur Fib	None	No	No	Yes	None	Sl.Improvement
5	10-19-53	H.S.T.	Bapt	F	40	Aur Fib	None	No	No	No	None	Excellent
6	9-13-54	W.M.W.	Miss. State	F	33	Reg	None	Yes	+	Yes	Pericardial friction rub from 28th to 46 P.O.day (Afebrile)	Good
7	11-11-54	G.L.N.	Bapt	M	18	Reg	None	Yes	+	No	Post commissurotomy Syndrome	Excellent
8	1-6- 55	D.J.M.	Bapt	F	23	Reg	None	Yes	+	No	Wound Inf.Involving skin & Subcutaneous Tissue	Excellent
9	1-21-55	W.B.	Bapt	F	36	Reg	None	No	No	No	None	Excellent
10	4-18-55	A.T.B.	V.A.	M	27	Reg	None	Yes	No	Yes	None	Excellent
11	5-5- 55	L.C.	V.A.	M	32	Aur Fib	Yes	No	+	Yes	Cerebral embolus producing Homonymous Hemianopia	Good
12	5-18-55	T.H.T.	Bapt	F	32	Reg	None	Yes	+	No	Rheumatic activity with fever,swollen,red joints etc.	No Improvement
13	5-20-55	L.D.B.	V.A.	M	35	Aur Fib	No	No	+	Yes	None	Excellent
14	8-13-55	H.C.M.	Bapt	F	43	Reg	Yes	No	+	No	None	Good
15	1-4- 56	P.S.	Bapt	F	28	Reg	None	No	No	No	None	Excellent
16	1-31-56	H.R.B.	V.A.	M	29	Aur Fib	None	No	+ +	Yes	None	Excellent
17	2-29-56	V.M.	Bapt	M	26	Reg	None	No	No	No	Temporary auricular flutter 7 weeks post-operatively	Excellent
18	4-18-56	W.W.G.	Bapt	F	28	Reg	None	Yes	+	Yes	None	Good
19	5-1- 56	R.R.B.	V.A.	M	35	Reg	Yes	No	No	Yes	Atelectasis	Excellent
20	5-5- 56	S.M.J.	St. Dom.	F	42	Reg	None	Yes	+	No	Post commissurotomy Syndrome	Good
21	5-17-56	E.M.	U.M.H.	M	26	Aur Fib	Yes				Expired during induction of anesthesia	Expired
22	5-25-56	J.O.B.	Bapt	M	54	Aur Fib	Yes	No	++	Yes	None	Too recent to evaluate
23	6-19-56	H.H.H.	V.A.	M	41	Reg	No	No	No	Yes	None	Too recent to evaluate
24	6-28-56	L.H.	U.M.H.	F	56	Aur Fib	Yes	No	++	Yes	Oliguria,mental confusion shock,expired about 36 hrs after surgery	Expired
25	8-14-56	C.C.S.	V.A.	M	33	Aur Fib	No	No	+++	Yes	Phlebothrombosis right leg	Too recent to evaluate

ALL WERE WHITE PATIENTS

tion of the valve leaflets is obtained, the finger and knife are removed from the atrium. As the finger is removed the purse string is closed. A Satinsky clamp is applied. The purse string is tied and then the cut edge of the atrial wall is sutured over with continuous 3-0 atraumatic silk. The pericardium is partially closed leaving a small opening for drainage into the left pleural cavity. The pleural cavity is drained with a Foley catheter in the eighth intercostal space in the midaxillary line.

FINDINGS AT SURGERY

Fourteen of the 24 cases explored had definite calcification of the valve leaflets. (One case died during induction of anesthesia and before the skin incision had been made). In only one case were the valve leaflets too heavily calcified to prevent commissurotomy. Calcification of this severity has been reported in other series in three to five per cent of the cases[9],[10]. One patient had calcification of part of the atrial wall. A clot was found in the atrium in two cases. One clot was soft, 3 cm. in size and easily removed. The other clot was organized and densely adherent to the atrial wall. It was not disturbed.

In all but one case the aperture of the mitral valve was greatly stenotic, less than 1.25 sq. cm. The largest aperture was about 1.5 sq. cm. (Normal is 5.0 sq. cm.)[11]. In a few cases only the tip of the finger could be passed before commissurotomy. In one case the knife had to be used before the finger could be passed through the valve aperture. The valve leaflets were usually greatly thickened and rolled.

There were adhesions of the papillary muscles and chordae tendineae producing a subvalvular stenosis in three cases. This was corrected by finger separation in each case.

One patient had aortic stenosis in addition to mitral stenosis. The pressure gradient across the aortic valve was measured at operation and found to be 30 mm. of mercury. Commissurotomy of the aortic valve was not considered indicated.

RESULTS

There were two operative deaths in the 25 cases or an operative mortality of eight per cent. One patient, No. 21 in Table 1, died during induction of anesthesia and before surgery started. An unsuccessful attempt at cardiac massage was carried out. The second death occurred 36 hours after surgery in a 56-year-old patient with marked kidney and liver damage.

Of the remaining cases only 20 have had their operation long enough to evaluate the result. Only two did not show any improvement. Eighteen (90 per cent) of the 20 were definitely improved.

Improvement has been evaluated on the basis of increased exercise tolerance, cessation of hemoptysis and attacks of pulmonary edema. In general the improved patients have been able to return to their respective duties as housewife, salesman, student, farmer, etc., with very little limitation in activity.

Although marked improvement has been noted they are all considered still as cardiac patients and continued careful supervision by their physicians is indicated.

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In the mountains of truth you never claim in
vain—NIETZCHE

No seed shall perish which the soul hath
sown—SYMONDS

Emergency Gastric Resection for Complications of Peptic Ulcer*

W. C. SHANDS, M.D.
Jackson, Miss.

THE GREAT majority of patients who bleed from peptic ulcers do not have massive bleeding and do well on conservative management. Massive hemorrhage from a peptic ulcer may, however, present serious problems.

Stewart has defined massive gastrointestinal hemorrhage as that resulting in a diminution of the circulating blood volume to 60 per cent or less of normal. Hoerr *et al.* have emphasized that gastrointestinal hemorrhage which requires more than 1500 cc. of blood in 24 hours for replacement is massive.

Conservative management of massive bleeding from a peptic ulcer includes blood replacement, nasogastric suction, sedation, rest and graduated feedings. The mortality rate on this program alone has varied widely in repeated series but averages between 5 and 10 per cent. The use of emergency gastric resection in selected instances has resulted in a salvage of some patients who would have been lost on a conservative program.

A second complication of peptic ulcer, acute perforation, has been treated by emergency gastric resection with increasing frequency within the past decade. The indication in this instance is not for improved survival rates primarily, but to provide definitive surgical treatment for an ulcer which has been sufficiently complicated to perforate. The exact place of emergency gastric resection in acutely perforated peptic ulcer has not yet been defined.

We have reviewed our experience with emergency gastric resections both for massively bleeding peptic ulcers and for acutely perforated peptic ulcers in the three-year period from 1953 to 1956. The hospital charts of 129 patients who underwent gastric resections between January 1, 1953, and January 1, 1956, were reviewed. In the first table the distribution of the ulcers and malignant tumors are shown. During 1953 all of the resections were performed by Dr. George Twente and Dr. J. Harvey Johnston. During the years 1954 and 1955 the majority of the resections were performed by them.

TABLE I

Gastric Resection January 1, 1953 - January 1, 1956	129
Peptic Ulcer	115
Duodenal Ulcer	93
Gastric Ulcer	19
Gastrojejunal Ulcer	3
Malignant Gastric Tumor	14
Carcinoma	9
Sarcoma	5

TABLE II

Massively Bleeding Peptic Ulcer Patients	
Emergency Gastric Resection	12 Patients
Interval Gastric Resection — Prior Massive Bleeding	18 Patients
Elective Gastric Resection — recent Massive Bleeding	4 Patients

All of the 129 patients presented in Table I were treated surgically with gastric resection. In this group there were 12 patients who required emergency operations for bleeding. During the same period there were 22 patients operated upon in whom prior massive bleeding was the most important factor in advising gastric resection, (Table II). This was usually advised at a later date to allow better recovery from the effects of bleeding which had been controlled conservatively. In some instances where a good risk patient had had a symptomatic ulcer for a long time, resection was advised promptly at the onset of massive bleeding. Similarly the duration of the symptoms and activity of the ulcer influenced the decision for resection in instances of perforation.

In the 12 patients requiring emergency resections, exsanguination was a real threat. During the same period one patient with massive bleeding, presumably from a duodenal ulcer, expired en route to the hospital. All of the 12 patients having emergency resection presented profound shock in relation to hematemesis or melena, and all patients had a hematocrit of 25 vol. per cent or less, or a hemoglobin of 8 grams or less. Thus all of these patients fulfilled the criteria of Stewart as to massive bleeding.

Those patients presenting with severe gastrointestinal hemorrhage who were treated by elective operation are not included in the emergency group.

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*Presented before the Section on Surgery at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

Ten of the twelve patients were admitted with massive bleeding, and their shock was controlled with blood replacement. While on a full hospital program, massive bleeding recurred and this was the indication for surgical intervention. Two patients could not be initially stabilized despite massive transfusions and were therefore operated upon. On the average, seven pints of blood were given before the patients were carried to surgery. Hematemesis as well as melena was present in ten of the patients, while two patients had melena alone.

TABLE III

Emergency Gastric Resection for Massive Bleeding	12 Patients
Prior X-Ray Demonstration of Ulcer	11 Patients
Sex:	Male 10, Female 2
Race:	White 11, Negro 1
Average Age: 54 years	Patients over 40 years 11

You will note in Table III that 11 of the 12 patients had prior roentgen demonstration of duodenal or gastric ulceration. The diagnosis of duodenal ulcer was strongly suggested in the remaining patient. The diagnosis and management of massive gastrointestinal hemorrhage from causes other than from peptic ulceration is beyond the scope of this report. A bromsulfalein liver function test and complete blood counts were obtained to exclude bleeding from esophageal varices or primary blood disease.

The average age in this group was 54 years, and eleven of the 12 patients were over 40 years of age. Of all deaths from bleeding peptic ulcers only 30 per cent occur below the age of 50, and only 20 per cent below the age of 40.

TABLE IV

Patients With Prior Massive Bleeding	5
Average Number of Transfusions Prior to Gastric Resection	7 pints

The preponderance of males in this small series is in keeping with the experience in large series. In Table IV we note that five patients operated upon had prior massive bleeding episodes. The reported results vary considerably as to the mortality in initial instances of massive bleeding as compared to subsequent episodes. An appreciable number of patients over age 50 have expired with their initial bleeding episode. On the other hand, recovery from one bleeding episode does not assure ability to withstand later bleeding episodes. Each case must obviously be evaluated separately.

Two patients had received large amounts of salicylate therapy for rheumatoid arthritis and had received several weeks of cortisone therapy prior to the onset of their bleeding. One of these patients had a gastric ulcer and one had a duodenal ulcer. The cortisone therapy was thought to be of etiological significance in the development of their ulceration.

TABLE V

Location of Massively Bleeding Peptic Ulcer	
Duodenal	9
Gastric	2
Gastrojejunal	1

In Table V the locations of the massively bleeding peptic ulcers are given. The patients with a gastrojejunal ulceration had had two prior episodes of massive bleeding. He was admitted for the third time with massive hematemesis and shock. Surgical intervention was performed quickly. In this patient a resection of a portion of the transverse colon was also necessary. His postoperative course was complicated by a fecal fistula which then closed spontaneously. He has remained well.

In Table VI the complications in this small group of patients are listed. It will be noted that the rate of complications is high in proportion to the small number of cases. The desperate condition of these patients and the presence of shock are important factors in the development of complications.

Impaired wound healing is reported as a common complication of emergency gastric resection for massive bleeding. One case of evisceration occurred in this series. Retention sutures are routinely used in these patients. Adequate blood replacement to keep serum protein levels maintained and a high oral protein intake are important in postoperative care to obtain a good wound healing.

Two patients had acute pancreatitis in the postoperative period. One patient had a transient elevation of the serum amylase which returned to normal in 48 hours. The second patient, however, subsequently developed chronic pancreatitis and remains chronically ill.

All of these patients had a standard 75 per cent gastric resection. Seven patients had an antecolic full Polya anastomosis, and five patients had a retrocolic resection with the Hofmeister modification of the Polya operation.

There was no hospital mortality in the small series. Two patients are known to be chronically ill; one from chronic pancreatitis and the second one from severe rheumatoid arthritis. Results have been satisfactory to good in 10 cases followed from 6 months to 3 years.

From our experience we feel that surgical consultation is advisable early in all cases with massive hemorrhage from a peptic ulcer. If the patient's rate of hemorrhage continues to be massive after 24 hours on a full hospital regime or if the

TABLE VI

Complications of Emergency Gastric Resections For Massive Bleeding

Evisceration	1
Pancreatitis, Acute	2
Fecal Fistula	1
Oliguria	2
Atelectasis	2
Congestive Heart Failure	1

patient's condition stabilizes and the patient then begins again bleeding massively, emergency gastric resection is usually indicated and can be performed with low mortality.

Keetley of London in 1902 did the first gastric resection for perforated peptic ulcer. Von Haberer in 1919 first advocated resection as a general measure of treatment for this condition. Youdine of Moscow has had the largest experience with this procedure, and he reported 1400 cases by 1939. In European clinics for many years and more recently in this country, there have arisen strong advocates of immediate gastric resections in patients with perforated peptic ulcers. Emmett favors gastric resection for perforated ulcer in any case of perforation which is remedial to surgical treatment.

Two factors have caused renewed interest in this procedure. First, is the greater safety in the performance of gastric resection, and second, the unsatisfactory long term results of gastric resection, and second, the unsatisfactory long term results following simple closure of the perforated peptic ulcer. Recent advances in supportive measures such as blood replacement, anesthesia, fluid balance and antibiotics have lowered the mortality rate of gastric resection. Long term follow up reports have demonstrated that contrary to earlier beliefs many patients in whom simple closure of the perforation was performed developed further symptoms. Approximately 20 to 35 per cent of these patients subsequently required definitive surgical procedures for their peptic ulcers.

Many authorities, however, feel that gastric resection in the face of acute perforation and generalized peritonitis should be reserved for a small group of selected cases. Bisgard has emphasized that immediate resection is definitely indicated in patients with 1) perforated carcinomas, 2) recurrent perforations, 3) perforations with fixed pyloric obstruction and 4) occasional cases in which hemorrhage and perforation occur simultaneously.

Certainly in the presence of acute perforation of a gastric ulcer, serious consideration must be given to gastric resection because of the risk of failing to resect a malignant gastric lesion which has perforated. Two patients in this series were seen with perforations of gastric ulcers, who subsequently proved to have malignant gastric tumors. In the first case, total gastric resection was performed for lymphosarcoma of the stomach in a 32-year-old male four weeks after closure of an acute perforation. This patient expired approximately one year later. In the second case a perforation of a presenting pyloroduodenal inflammatory mass closed in a 58-year-old man. Eight days later the patient's lesion reperforated, and at exploration he was found to have a pyloric adenocarcinoma. He survived a stormy postoperative convalescence but expired six months later from recurrent carcinoma.

It is difficult at times to recognize the exact site of the perforation in the presence of massive peritonitis.

TABLE VII

Patients With Prior Acute Perforation Requiring Subsequent Gastric Resection

Duodenal Perforation		5
Gastric Perforation		3
Ulcer	1	
Carcinoma	1	
Sarcoma	1	

TABLE VIII

Emergency Gastric Resection For Acutely Perforated Peptic Ulcer	5 Patients
Presence of Generalized Peritonitis	5 Patients
Duration Ulcer History	5 Days to 15 Years

Sex: Male 2, Female 3; Race: White 4, Negro 1

TABLE IX

Complications of Emergency Gastric Resections for Acute Perforation

Convulsions Related to Over Hydration	1
Minor Anastomotic Bleeding	1

In the 129 patients with gastric resection there were five patients who had persistent trouble following closure of acute perforations of duodenal ulcers until definitive gastric surgery was performed. (Table VII). The two patients seen with acute perforation of gastric neoplasm should certainly have had emergency resection.

We employed emergency gastric resections for perforated gastric or duodenal ulcers five times in the three-year period. Two of the five patients had long standing ulcer symptoms and had been relatively intractable to medical management. Thus indication for resection existed prior to the onset of the acute perforation.

The duration of time from the onset of acute perforation to the gastric resection varied from two hours to 72 hours. In the instance of the delay of 72 hours the patient was a 73-year-old white woman. Two weeks prior to admission here she had developed hematemesis. Three days before being admitted she developed severe pain and shock. Barium by mouth passed into the general peritoneal cavity on the morning of referral here. Despite the long duration of symptoms prior to emergency surgery, the patient survived the gastric resection. This procedure was necessary because of concomitant bleeding and a fixed pylorus which would have required a drainage procedure had simple closure been employed.

The presence of three women in this small series is of interest since the incidence of perforation in the female is usually quite low. In Table IX the complications are listed. These were related to the immediate postoperative period and the results in the five cases have been very gratifying. There were no serious late complications.

We have reserved emergency resection for perforations to a small number of cases who fulfill Bisgard's criteria or who have a long standing ulcer which has been difficult to manage. In the future it is probable that an increasing number of these resections may be done but it must be kept in mind that good results are obtained in only 80 per cent to 90 per cent of gastric resection patients and that an appreciable number of patients who have simple closure of the perforations will do extremely well.

In summary, we have presented two small series of cases requiring emergency gastric resection. These occurred in a group of 129 gastric resections performed in a three-year period. Twelve patients had gastric resections for massive bleeding not controllable by other measures. Five patients had resections for acute perforations of their peptic ulcers. There was no hospital mortality in this small series of emergency gastric resections.

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DISCUSSION

Dr. Edward C. Hamilton (Gulfport) — Dr. Shands has left little subject matter to be covered by the discussors after his thorough review of this perennially interesting problem. I must say that I agree with almost every detail of his concepts of management of these two serious complications of peptic ulcers.

It is well recognized that emergency resection is necessary in massive, uncontrollable bleeding. The real crux of the matter lies in the critical judgment of the surgeon as to which patient is really bleeding massively and uncontrollably, and his ability to reach this decision before the patient's condition has deteriorated to the point of excessive operative risk.

Dr. Shands mentions the valuable criteria of Stewart for determining whether or not bleeding has been massive. He classes as uncontrollable those patients who are still bleeding "massively" after 24 hours of vigorous conservative therapy in the hospital, and those whose bleeding recurs "massively" while still on such a regimen. Those whose blood pressure cannot be restored to normal with transfusions are, of course, resected immediately.

These are valid, extremely useful criteria, especially in hospitals where house staff aid is not available. I should like, however, to call attention to a somewhat more burdensome, but I believe, highly accurate method of selection of cases for emergency resection worked out and successfully used in Nashville several years ago and published by Alsobrook, Schell, and McCleery in *Gastroenterology*, May 1952.

In essence, GI bleeders were grouped into four categories according to vital signs and hematocrit. On admission, vital signs and hematocrit are determined and blood transfusions are begun. These are continued consecutively until the vital signs are stabilized. Those with hematocrit of thirty-six or more are considered *mild bleeders* and are not transfused. Therefore, 500 cc. of blood are given every eight hours and the hematocrit determined every eight hours before transfusion. If the hematocrit continues to rise, the patient is classed as a "moderate bleeder." When the hematocrit reaches 36-38, transfusions are stopped, but close observation is maintained until danger of recurrent bleeding is judged to be over.

If the hematocrit remains unchanged despite 500 cc. blood every eight hours, the patient is classified as a "severe, compensated" bleeder.

If the hematocrit falls despite 500 cc. blood every eight hours the patient is considered a "severe, uncompensated" bleeder and is a candidate for resection immediately.

Of course, those whose vital signs are not stabilized at satisfactory levels after 1000-2000 cc. of blood administered rapidly are considered to be "exsanguinating," and are operated upon without further ado.

Seventy-nine cases of massive bleeding treated in this manner were reported with an over-all mortality rate of 1.27 per cent. Twelve of these seventy-nine cases had emergency resections with two deaths, a mortality rate of 16.67 per cent.

With reference to the problem of GI bleeding of unknown origin, I would call attention to the usefulness of upper GI radiographic examination with barium (but with no palpation) used twenty seven times *during active bleeding* by this group without untoward incident and with demonstration of the site of bleeding in twenty-five cases.

The concept of "blind resection of 75 per cent or more of the stomach and the first portion" of the duodenum in cases requiring emergency operation wherein the bleeding site is undeterminable need only be mentioned, as it is, now rather universally accepted.

Gastric resection is undoubtedly worthwhile in use in certain highly selected cases, but one need only to remember that 65-80 per cent of reported cases of perforation treated by simple closure will never need further surgical treatment of their ulcers to hesitate to apply resection to *all* such cases. Dr. Shands mentioned, moreover, the 10-20 per cent of resected patients who become "gastric cripples" as a further vote for conservative thinking in this matter. One wonders, however, if the increasing use of vagotomy and hemigastrectomy might not reduce the number of unsatisfactory results from gastric resection.

One final word concerning the complication of chronic pancreatitis encountered by Dr. Shands: I recall a patient who developed obstructive jaundice and pancreatitis postoperatively, in whom, at reoperation, one of the stitches of the outer layer of the duodenal turn-in was found to be angulating and obstructing the common duct at its junction with the Ampulla of Vater. The stitch was removed, and a prompt recovery ensued.

Cholelithiasis in Young Adults*

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CHOLELITHIASIS has long been considered a disease of the obese, middle-aged, female segment of our population. This concept is aptly described by the time-honored adage "fair, fat, and forty." Occasionally, however, due to changing conditions or better diagnostic procedures we find it necessary to re-examine and revise some of these time-honored concepts. There is no place in medicine for dogma, and if we permit ourselves to develop too complacent ideas as to what can or cannot be, we will err in diagnosis much too often for comfort—either our own or the patients'. During the last two years I have encountered cholelithiasis seven times in young adults, some of whom were fair, but not fat or forty. Thus it became necessary for me to review the etiology and pathology of this condition and to reconsider it objectively.

A review of the literature reveals a surprisingly large number of cases of cholelithiasis in infants and children reported by Potter[1], Sallick[2], Seidler, and Brakely[3]. Most of these cases are reported because they are relatively rare and therefore interesting. This paper is offered with the hope that it may cause an increased awareness of the possibility of cholelithiasis in young adults and thereby bring about a more frequent consideration of it in the differential diagnosis of acute or chronic surgical conditions in young people.

It has been suggested that cholelithiasis be classified into three varieties, namely malformation, inflammation, and metabolic[4]. Malformations of the biliary tree with atresia or absence of one or more parts causes biliary disease in early infancy. Stagnation of bile results in too great a concentration and is frequently followed by the formation of concretions.

Inflammation of the gallbladder with suppuration or spontaneous recovery does not necessarily give rise to stone formation, but does occur in younger age groups more frequently, I believe, than is commonly realized.

The metabolic type is the same usually seen in the older so-called "typical" gallbladder patient and is usually associated with, or at least followed by, chronic infection.

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It is commonly agreed that acute exanthemas and respiratory infections play a role in the etiology of biliary concretions. Typhoid fever has diminished in importance as an etiological factor as its incidence has diminshed. A number of surgeons have reported infestation of the biliary tract with lamblia although all cases reported were not accompanied by cholelithiasis. Obstruction due to compression by extrahepatic structures, such as lymph nodes, may frequently be responsible for stagnation of bile and the formation of stones.

CASE REPORTS

I. A 23-year-old white female presented herself for treatment with the chief complaint of recurrent colicky pain in the right lower quadrant and associated nervousness. History revealed that these complaints had been present for about eight years. During this period of time, the patient stated that she was also subject to frequent attacks of gaseous indigestion and had learned that she could not eat onions or fatty foods. Neither her family nor her family physician had been particularly impressed by her symptoms and the patient had borne considerable discomfort in silence. Physical examination was completely negative except for mild tenderness in the right upper quadrant. Cholecystograms revealed the gallbladder to be filled with stones. Cholecystectomy was done and the patient has been in excellent health since.

II. A 22-year-old white female was seen in the emergency room of the hospital for excruciating colicky pain which was fairly typical of gallbladder colic. History revealed that for the past six months she had suffered from frequent indigestion. This had become much worse during the two weeks preceding the attack of colic. Antispasmodics and opiates were administered for pain, and cholecystograms made two days later revealed her gallbladder to be filled with stones. The patient refused surgery and is occasionally seen with severe indigestion even though she avoids all fatty foods.

III. A 30-year-old pregnant white female at term entered the hospital thinking that she was in early labor. Examination revealed that she was not in labor, but was having colicky epigastric pain. This pain soon subsided spontaneously and the patient was discharged without a diagnosis being made. Within three months of delivery the patient was seen on two occasions with typical severe gallbladder colic. However, at no time had she had indigestion or any symptoms, other than colic, suggestive of gallbladder disease. Cholecystograms revealed the gallbladder to be filled with stones and cholecystectomy was subsequently performed.

IV. A 21-year-old white female presented herself for treatment for an attack of acute indigestion. Her history revealed that she had had a mild digestive disturbance for several months following immediately the termination of a normal pregnancy. The acute indigestion was relieved with antispasmodics and antiacids and no definite diagnosis was made. Shortly thereafter she became pregnant again and had many episodes of severe indigestion. Following the termination of pregnancy cholecystograms were made and the gallbladder was found to be filled with stones. Since then still another pregnancy has ensued, this time being complications by numerous bouts of gallbladder colic. Thus far she has not agreed to undergo surgery.

V. A 31-year-old white male presented himself with a chief complaint of pain in the right upper quadrant persistent for three weeks, pain on deep breathing and pain in his right shoulder. He had had gaseous indigestion for several months prior to this episode. Complete examination was negative with the exception of extreme tenderness in the right upper quadrant. Cholecystograms revealed a single large stone in the gallbladder and the patient has been in excellent health ever since its removal.

VI. A 29-year-old white female complained of gnawing epigastric pain for two years. Recently she had suffered two attacks of colicky pain which were much more severe. For the same period of time she had had almost constant indigestion accompanied by considerable flatulence. However, the patient was never able to detect whether any types of foods made her indigestion worse. Cholecystograms revealed a large single stone in her gallbladder. At surgery several smaller stones were also found which no doubt accounted for her severe colic. She has been free of symptoms following cholecystectomy.

VII. A 22-year-old white female was seen at home with acute epigastric and right upper quadrant pain. She was much distressed and was sitting up in bed belching with every breath. There was only slight tenderness over the right upper quadrant of her abdomen. Several days later following subsidence of her symptoms, x-rays revealed the gallbladder to be filled with stones. Surgery was refused and the patient continues to have rather frequent bouts of indigestion and colic.

CONCLUSIONS

From these seven cases of cholelithiasis in persons ranging in age from 21 to 31 years, and drawn from a moderate-sized general practice over a two-year period, several conclusions may be readily drawn.

We must remain on our "diagnostic toes" so that youthfulness of the patient will not mislead to an erroneous diagnosis. We must also educate the public into an acceptance of the fact that cholelithiasis is a fairly common disease of young adults. This will result in a more ready acceptance of the treatment of choice.

History of chronic indigestion with or without bouts of colicky pain warrants investigation of the gallbladder by x-ray regardless of the age of the patient.

Surgery is the conservative treatment because it offers the only cure for cholelithiasis regardless of the age of the patient. This treatment is much less hazardous in otherwise healthy young people than in older age groups where complicating factors are so often present.

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Cardiac Syncope*

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SYNCOPE due to cardiovascular reasons may occur following any vascular accident. This paper will discuss cardiac syncope due to the carotid sinus syndrome and to the Adams-Stokes syndrome. Other causes of cardiac syncope are hyperventilation, and diminished venous return due to stimulation of the sympathetie nervous system.

CASE 1 (Q.F.D.)

In May 1951, a white female, aged three years, was seen after she had experienced three attacks of loss of consciousness, accompanied by convulsive seizures. At the time of examination the child did not appear ill, and there were no physical findings of note. The mother stated that during the attacks the child did not breathe, and that no heart beat could be felt. The child was admitted to the hospital, and two subsequent attacks of syncope were observed. Three days after admission, the patient developed a rough, precordial, pericardial, rasping noise, accompanied by fever. A diagnosis of active rheumatic fever was made. Cardiac enlargement, and aortic and mitral murmurs, were found. Repeated blood cultures were negative. With the subsidence of the active rheumatic fever, the patient had an apical systolic murmur.

In February 1952, the patient had another attack of syncope, and in March 1952, experienced three such attacks, accompanied by generalized convulsions, pallor, and profuse sweating. As there was no evidence of active rheumatic fever at that time, she was treated with ephedrine. There have been no subsequent attacks.

CASE 2 (C. W.)

A white female, aged 86, was seen in the hospital in July 1954, having frequent attacks of sudden convulsive seizures, accompanied by loss of consciousness, pallor, and profuse sweating, and with no palpable pulse for the duration of the seizures. Between attacks her blood pressure was 280/140, and her pulse was 30.

The patient was given ephedrine sulphate 3/4 gr. orally, with remarkable results. The blood pressure within an hour decreased to 160/100, the pulse increased to 60, and no further attacks of syncope occurred. Since that date the patient has been maintained on 3/8 gr. of ephedrine, the interval between doses varying from 4 to 7 hours. The patient has learned to maintain her pulse at a satisfactory rate by altering the interval between doses. She remains well and active at the present time.

CASE 3 (A.M.M.)

A white male, aged 85 years, had his first syncopal attack 15 years ago. He was observed in the initial attack, and in many subsequent attacks, by his daughter, who is chief of nurses at our local hospital. He experienced the first attack as he sat down to a meal. He suddenly dropped his head, turned pale, and began to sweat and to jerk. In a few seconds he regained consciousness and remembered nothing of the attack. He insisted on eating his dinner, in spite of the alarm of his family.

He had many such seizures in the succeeding years, their severity varying in degree from simple fainting to epileptiform seizures. He was investigated for the possibility of epilepsy, but no evidence was found to support such a diagnosis. In 1947 he had a coronary occlusion, and he continued to experience syncopal attacks from time to time.

Four years ago, at the age of 82, he was seen with acute pulmonary edema, and I treated him cautiously with digitalis and diuretics. He made a good response to therapy, but continued to have syncopal attacks. He was then placed on ephedrine, and the dosage was varied until he had infrequent and less severe attacks. Recently he has been better controlled with isuprel.

CASE 4 (H.E.W.)

A white female, aged 65, in January 1955, had a sudden fainting spell, followed by a convulsive seizure, after which she was left with a right hemiplegia. She had many subsequent seizures, at which time the hemiplegia became temporarily more marked. In December 1955, she was observed by me during an attack. At this time the heart was extremely rapid and irregular, and a diagnosis of ventricular fibrillation was made. The patient was treated with oxygen, pantopon, quinidine sulfate, and pronestyl. She made a satisfactory response, and has been maintained on quinidine sulfate and pronestyl, without further attacks to date.

CASE 5 (T. G.)

In February 1955, a white male, aged 64, had two sudden seizures of syncope, accompanied by mild convulsions and profuse sweating, and followed by a feeling of generalized weakness. Repeated electrocardiograms showed a defect in the interventricular conduction, but no evidence of recent coronary occlusion. He was treated with ephedrine. The patient has remained well to date, with no further syncopal attacks.

Since Morgagni in 1765 described the syndrome of "frequent attacks of little strokes," there have been numerous reports of this alarming cardiac condition, in which the patient suddenly faints and may have a generalized convulsive seizure similar to an epileptic seizure. The patient usually recovers in a few seconds, but the attack may last several minutes, and the patient often remembers nothing of the attack.

Adams in 1827 and Stokes in 1846 described attacks of this nature. Until the advent of the electrocardiograph, the mechanism of the Adams-Stokes syndrome was thought to be one of complete AV block. It is now known that the seizures may occur with any paroxysmal ventricular arrhythmia. It may occur in patients with partial heart block on a sudden change from a partial to a complete block. It may occur when the ventricular diastole is prolonged, as in ventricular tachycardia, prefibrillary tachycardia, ventricular flutter, and ventricular fibrillation.

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It is now agreed that the Adams-Stokes syndrome is repeated syncopal attacks due to sudden inadequate cardiac output, associated with abnormal cardiac rhythm and inadequate cerebral circulation. There are wide individual variations in susceptibility to convulsive seizures of cardiac origin.

The carotid sinus syndrome presents the same clinical picture as the Adams-Stokes syndrome. The essential differences in these syndromes are 1) the carotid sinus syncope is produced by pressure on the carotid sinus, as in sharp turning of the head, or compression by a tight collar, or by a blow; and 2) the heart has a normal rhythm mechanism. Bradycardia or tachycardia may occur during the carotid sinus syncope.

The mechanism of carotid sinus syndrome has been divided into three main types:

1) Cardioinhibitory (vagal) is the most common, and is frequently associated with cardiovascular disease. There is cardiac slowing or asystole. Atropine is of value in treatment, and as a diagnostic test.

2) Vasodepressor, in which a sudden drop in blood pressure occurs, and for which ephedrine or epinephrine are the drugs of choice.

3) Cerebral, in which loss of consciousness occurs without significant change in heart rate, or decrease in blood pressure.

There is considerable overlapping in these types in any one patient. Also, there is overlapping of the carotid sinus syndrome with the Adams-Stokes syndrome.

When a persistently hypersensitive carotid sinus is present, x-ray treatment and even surgery may be indicated.

The etiology of Adams-Stokes attacks was at first thought to be fatty degeneration of the heart, and later this concept was enlarged to include primary arteriosclerotic heart disease, acute rheumatic fever, coronary occlusion, and toxicity to drugs such as digitalis, quinidine, and anesthetics. De Boors reports a patient who suffered an Adams-Stokes attack following shellshock during war, and who, during the remaining ten years of his life, had heart block produced by any sudden noise or excitement.

Attacks may be produced by tumors pressing on the vagus, or by inflammation of the vagus. Syncope may be caused by conduction defects in the ventricle which become worse with any increase in the auricular rate. These conduction defects may be due to atherosclerosis, calcification of the interventricular septum, calcific aortic stenosis, fatty infiltration of the heart, primary tumors of the heart, phlebosclerosis, digitalis poisoning, congenital heart disease, and myocardial infarction.

Systemic infections, such as tuberculosis, rheumatic fever, virus pneumonia, poliomyelitis, scarlet fever, diphtheria, and German measles, have been reported as interfering with the cardiac rhythm mechanism, and thereby causing syncope. Myxedema and endocardial fibro-elastosis have also been reported as etiological bases of Adams-Stokes syndrome.

Several cases have been reported in which there was extreme hypertension bradycardia, especially in the arteriosclerotic group. About three-fourths of the reported cases have occurred in patients between the ages of 50 and 70. Defects in interventricular conduction are recorded in about three-fourths of the reported cases. Cardiac failure has been present in about one-half of the reported cases.

When the mechanism is ventricular tachycardia or fibrillation, the attacks last longer, with more severe convulsive seizures, and the prognosis is poorer. Electrocardiograms made during Adams-Stokes attacks show 1) ventricular standstill, or asystole; or 2) ventricular standstill, preceded by ventricular tachycardia; or 3) ventricular tachycardia and/or ventricular fibrillation with or without ventricular standstill.

Between attacks the electrocardiogram is abnormal, as a rule, but does not fit into a specific pattern, and is usually compatible with the basic heart disease.

In cases of carotid sinus syndrome, the heart may be normal, and at autopsy following fatal syncopal attack, normal hearts have been found.

TREATMENT

Cardiac syncope presents one of the most alarming of cardiac emergencies. Confronted with a patient, seen perhaps for the first time, in the throes of an attack, one may find life-saving such measures as oxygen, pantopon, application of peripheral tourniquets if pulmonary edema is present, and artificial respiration. Rapidly administered epinephrine or ephedrine may aggravate the mechanism of the attack, and, if its basis is auricular or ventricular fibrillation or tachycardia, may even produce death. Sudden jabbing in the precordium with the thumbs has been reported to have stopped attacks. It should be remembered that many patients who are seen in an apparently critical condition have recovered spontaneously from previous attacks.

An electrocardiogram is desirable, but not essential. If the heart action is rapid and feeble, the mechanism is auricular or ventricular tachycardia, flutter, or fibrillation, and the use of pronestyl is indicated, and quinidine is of value. Quinidine is of no value in the case of AV block, and may be harmful.

If there is bradycardia or asystole during the attack, an AV block is probably the mechanism. The drugs of choice are epinephrine, ephedrine, and aludrine (isuprel).

The administration of 100 to 200 cc. of molar sodium lactate solution intravenously or intracardiacly has been reported to have a beneficial effect in restoring cardiac rhythm, and in cardiac arrest. The administration of 50 per cent glucose i.v. has been found helpful. Zoll has used an artificial electrical stimulus, applied externally, as a pacemaker, to restore and maintain cardiac rhythm.

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NINETEEN PER CENT TO AID MEDICAL EDUCATION

EDITORIAL

A House Committee of the United States Congress has this last month mailed a questionnaire to most medical organizations relative to federal aid to medical education. The implications of this questionnaire are apparent to all of us.

As you know, the American Medical Education Foundation was organized and sponsored by the American Medical Association in 1951 to seek financial contributions in behalf of the medical schools. The medical profession's annual goal is $2,000,000 and this sum is needed in addition to funds contributed annually from other sources. Industry and business are asked to assist in raising the additional amounts to meet the annual $10,000,000 operational deficit of our medical schools. Unless we reduce this deficit, the practice of medicine as we know it today will no longer exist.

In 1955, the A.M.E.F. disbursed $1,120,000 to the medical schools. Since 1951 the total forwarded by the Foundation has been $4,684,312. Together with contributions from industry collected through the National Fund for Medical Education $9,598,491 has been made available to the schools since 1951.

The fifth annual report of the Foundation shows that of the 1,560 Mississippi physicians, 109 contributed to the Foundation in 1955—or 7 per cent. During the same period, 192 Mississippi physicians made financial contributions totaling $3,995 directly to the alumni programs of their own schools. Therefore but 19 per cent of this state's medical profession in 1955 aided medical education.

These statistics prove conclusively that our physicians need to be educated to the pressing financial need that exists in our medical schools and my appeal this month is directed to those members of the profession who have not yet given their financial support either to the American Medical Education Foundation or to the medical schools from which they graduated.

By contributing to the A.M.E.F. the medical profession is factually stating its depth of conviction in the present character of our medical schools. Additional solid response from our profession will stimulate a like response from business and industrial groups. Dr. Louis H. Bauer, A.M.E.F. president, points out, "As long as our institutions of higher learning remain free from federal subsidy and control, the future freedom of this nation is assured and the rights of the individual protected."

Treatment of Acute Hand Injuries*

THOMAS C. TURNER, M.D.
Jackson, Miss.

It has been estimated that approximately one-third of all industrial injuries involve the hand primarily, and the treatment of these hand injuries is one of the most exacting fields in traumatic surgery. Even under the expert management of the most skilled surgeons results are often discouraging[1].

Experience has proved that hand injuries should be treated as a group rather than simply problems in the various surgical specialty fields. Therefore, one dealing with hand injuries should have knowledge in the treatment not just of one particular group of tissues but in all those present in the hand and upper extremity.

In this rather limited discussion of hand injuries I shall use Flynn's classification of acute hand wounds. He classifies hand wounds as either simple or compound[2].

Simple wounds are those in which only one tissue is interrupted, such as skin or bone. Treatment of these wounds is usually uncomplicated. Simple skin lacerations usually can be repaired without difficulty. Simple fractures of the fingers and metacarpals usually present no serious problems, but if any one common mistake is outstandingly noticeable, it is the failure to adhere to the principal of splinting in the position of function. Too frequently we see the old banjo splint or the common offender, the tongue blade, used to splint injured fingers in extension. This treatment may not lead to uniformly bad results, but it is inexcusable to allow contractures to take place in extension, when the position of function can be so easily maintained with good results. Occasionally this rule has to be violated, as in the treatment of a mallet finger in which there is disinsertion of the extensor tendon from the terminal phalanx. The preferred treatment in this injury is a volvar plaster splint which holds the distal finger joint in hyperextension with the middle finger joint in flexion to relax the lateral bands of the extensor mechanism. Another necessary violation of the position of function rule is in the case of fracture of the metacarpal head with displacement of the head into the palm. Usually the 90-90 position is preferable in treating this fracture, with the proximal and middle finger joints flexed to ninety degrees so that force in the direction of the dorsum of the hand can be exerted on the end of the proximal phalanx to hold the head in the reduced position. Regardless of the position used, it is inadvisable to immobilize fingers for more than three or four weeks at a time; otherwise, irreparable limitation of motion of the joints may occur[3],[4].

Compound injuries are those in which more than one tissue is interrupted. This does not necessarily imply a fracture. It can include only the skin and nerve or tendon but may also include bone. These compound wounds vary in their severity, depending upon the type of violence inflicted and the degree of contamination present in the wounds. They may be subdivided as follows: Incised, avulsed and crushed wounds.

Of primary consideration in the treatment of these compound injuries is the decision about closure. Usually, incised wounds can be closed readily after minimal excision of irregular skin margins and obviously devitalized soft tissue.

In the case of avulsed wounds, frequently the full thickness skin which has been torn loose from the underlying soft tissue can be used as a full thickness graft provided it is attached at one end and also provided all of the subcutaneous tissue is removed down to the basal layer of the skin.

In wounds caused by crushing violence much more severe damage has been incurred, and it is much more difficult to determine which tissues are viable. Therefore, it is best in this type of injury to carry out thorough irrigation and remove only the grossly soiled and obviously devitalized tissue. Suturing is limited to that necessary to maintain flaps in anatomical position. If the wound can be cleaned up fairly well, split thickness skin can be used to cover open areas. It is absolutely essential that tendons, nerves and bone be covered if possible, but this must not be carried out to the extent of creating a closed wound in cases which in all probability will become infected[1],[2],[3].

Another consideration in primary closure of wounds is of great importance: that is, the time which has elapsed between injury and treatment. The old doctrine of closure before six hours and non-closure after six hours has been modified somewhat by antibiotics. However, these drugs cannot be depended upon to eliminate infection in seriously devitalized or heavily contaminated wounds, regardless of the time interval before treatment. It may be permissible to close clean wounds primarily up to twenty-four hours. However, in some grossly contaminated wounds it would be inadvisable to close even within one hour after the injury[1,2,3].

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*Presented before the Central Medical Society, Jackson, Miss., April, 1956.

If skin closure cannot be accomplished by primary suture, coverage can be provided by using split or full thickness skin grafts, local rotational flaps, or pedicle flaps from another extremity or from the abdomen. Opinion is somewhat divided about covering amputated finger tips. Some authorities recommend abdominal flaps and others recommend palmar flaps[1,3]. I agree with those who prefer abdominal flaps, in order to eliminate the possibility of a tender scar on the pressure area of the palm.

Let us now consider the individual treatment of nerve, tendon and bone injuries in these compound hand wounds. In general, fractures may be reduced primarily if the injuries are not obviously septic, but in cases that are already late or septic fractures should be reduced by traction rather than by manipulation[1,2,3].

Incised nerves should be sutured primarily in all types of wounds except late ones that are already septic. Crushed or avulsed nerves are probably best treated by delayed suture about six weeks later. I would like to emphasize the importance of digital nerve repair. Of all nerve repairs, this is probably the most uniformly successful although the suturing procedure is somewhat tedious. Usually 6-0 or 7-0 atraumatic silk is preferable for this task. Most hand surgeons agree that a secondary operation solely for the repair of a digital nerve is worth while; therefore it behooves us to carefully check sensation in the fingers even with the smallest of wounds, and to repair these small nerves primarily in clean incised wounds[1,2,3].

The primary repair of tendons of the hand should only be carried out for cleanly incised tendons, probably within the first six hours after injury, and only in wounds which appear to be fairly free of contamination. No crushed or avulsed tendons should be repaired primarily. Also, primary tendon repair should not be carried out in the presence of fractures, since the prolonged immobilization sometimes necessary for fractures will eliminate the possibility of a good result from tendon repair[1,2,3].

Extensor tendons in the digits and on the dorsum of the hand pose a relatively minor problem of repair, and results are usually fairly good following anastomosis with a figure-of-eight wire suture which can be removed at about four weeks postoperative. It should be remembered that the blood supply on the dorsum of the hand and fingers is relatively poor as compared to that on the flexor surface of the hand. Therefore, immobilization for these extensor tendons should be continuous for approximately four weeks, whereas for flexor tendons it is usually limited to three weeks[4].

The repair of flexor tendons varies with the location of the injury. The most critical area in the hand is Bunnell's No-Man's-Land, which extends from the distal palmar crease to the middle flexor crease of the fingers. In this area the two tendons are closely applied to each other and they glide through a rather tight, fibrous tunnel. Repair of both flexor tendons in this area leads to consistently bad results because of adhesion formation between the tendons and the tunnel. The next alternative in this area is to sacrifice the sublimis tendon and repair the profundus. It is absolutely essential after suturing the profundus tendon here to completely divide the flexor tunnel on one side in order to prevent ischemic necrosis of the tendon due to postoperative swelling in this rather tight tunnel. Even with the best technique and without infection, results of this procedure are frequently very poor. An alternative consists of primary closure of the wound followed in about six weeks by secondary tendon graft. This grafting procedure consists of removal of the sublimis tendon up to the proximal palm as well as removal of the profundus tendon segment distal to the origin of the lumbricals in the palm, and then inserting a tendon graft extending from the profundus stump in the palm to the terminal phalanx. The end results of flexor tendon grafting by one of the country's outstanding hand surgeons, Dr. Joseph H. Boyes, are not as good as would be desired, but he reported that by using the latest technique described above with wire sutures approximately 70 per cent of the cases could flex to within one inch of the distal palm[1,3,5].

When the profundus tendon is lacerated distal to the midpoint of the middle phalanx, primary repair by use of the suture at a distance technique is probably preferable. If the tendon is divided near the distal joint, the proximal end should be pulled out and reinserted into the distal phalanx[3].

When flexor tendons are lacerated in the palm proximal to the distal palmar crease, results are usually fairly good after tendon suture. If the sublimis alone is cut, it can be ignored. If the profundus alone is cut, it should be sutured. If both the sublimis and profundus tendons are cut both can be sutured, but it is probably better to sacrifice the sublimis and suture only the profundus because cross-union will very frequently occur between the two sutured tendons and greatly impair motion in the finger. Sacrifice of the sublimis tendon does not noticeably impair the function of a finger[1],[3].

If the tendons are cut in the carpal tunnel or the wrist, they can be sutured individually, but again some cross-union is apt to occur and better results will probably be obtained if the sublimi are sacrificed and only the profundi are sutured[1],[3].

There is some controversy about the type of suture material used in repairing tendons. Some men have used silk consistently[1] whereas the West Coast group, including Doctors Bunnell and Boyes, have obtained better results with stainless steel wire[3],[4]. They maintain that silk causes more local reaction and has a greater incidence of infection than wire. In general one would not go wrong by using Bunnell's suture at a distance technique for flexor tendons and the figure of eight wire loop for extensor tendons. In using the suture at a distance technique the tendon ends are approximated with the finest of nerve silk suture and the tension of the tendon is relieved by the pull-out wire plus the positional splintage of the wrist and finger in flexion[3].

If additional exposure is needed for repair of severed flexor tendons or digital nerves, supplementary incisions should be made on the midlateral aspects of the fingers or parallel to the palmar creases in the palm. Longitudinal incisions should never be made on the palmar surface of fingers or in the palm. Contractures resulting from such incisions usually eliminate any benefits that may have been gained from adequate tendon suture[3].

In closing I would like to emphasize that the hand is an organ of extreme importance in maintaining life and livelihood. Therefore its injuries deserve carefully executed treatment in a fully equipped operating room with adequate anesthesia. If proper facilities are not readily available it is much better to do nothing than to carry out damaging procedures under poor conditions.

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INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

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CARDIOLOGY

Influence of Heart Disease on Surgical Risk—Dana and Ohler. These authors have reviewed cardiac patients submitted to surgery during the interim January, 1950 through February, 1955. One hundred and one patients were studied, involving 134 operations, and the results were compared with those from a series of 69 surgical patients free from heart disease. The group of patients with heart disease had an average age of 61 years compared to the control group of 49 years, and the gross mortality in the two groups was 7.4 per cent in the cardiac group and 1.4 per cent in the non-cardiac group. The rate of incidence of cardio-vascular and respiratory complications was 21.6 per cent in the cardiac group and 5.6 per cent in the non-cardiac group. Obviously, from these figures, the risk to the cardiac patient was, therefore, greater but not excessive. It is also shown from this study abnormalities in the electrocardiogram alone was no indication as to the surgical risk involved; and that those patients who had hypertensive heart disease or a combination of hypertensive and arteriosclerotic heart disease had no cardiac death and suffered no cardio-respiratory complications. However, the patients with anginal syndrome had a 7 per cent cardiac death rate and a 35 per cent incidence of cardio-respiratory complications. The importance of good history taking was emphasized in this article in determining the magnitude of the risk, and careful attention preoperative care, surgical and anesthetic technique, and post-operative care was emphasized.

COMMENT: I believe that this bears out several facts that the practicing physician has learned to appreciate over the years. 1) The dangers in prognostication from an electrocardiogram alone. 2) The importance of a functional history in evaluating surgical risk, rather than laboratory procedures and equivocal physical findings. 3) The surprisingly good outlook to be offered even a known cardiac who has to undergo surgery.

HEMACHROMATOSIS

MR. CC, 41-year-old white male, was first admitted to St. Dominic's Hospital on January 12, 1953.

A review of the chart revealed that Mr. CC had recently developed rather severe diabetes with rather typical symptoms of polydipsia, polyuria, polyphagia and nocturia. He was first seen by a local internist and placed upon a diabetic diet and NPH insulin. At the time he was first seen an enlarged liver was noted and so-called "liver spots" were described over the face and neck. He was admitted to St. Dominic's for evaluation of liver function and for the diagnosis of hepatomegalia. At this time the impression was diabetes mellitus, possibly hemachromatosis. Physical examination was not particularly revealing with the exception that the patient seemed to be rather poorly nourished and emaciated and some bronzing of the skin was recorded. The liver was enlarged 6 cm. below the right costal margin in the right midclavicular line and the spleen tip was barely palpable. The rest of the examination was normal. X-ray examination of the chest was interpreted as showing a heart of normal size, configuration and clear lung fields. A plain film of the abdomen in the upright and supine positions revealed considerable liver enlargement, the edge approximately at the crest of the right ileum. No definite mention of density increase of the liver was made at this time by the radiologist and no electrocardiogram was recorded upon this visit. Complete blood count was interpreted as showing a slight normocytic, normochromic type of anemia and blood chemistries for cholesterol and blood urea nitrogen were well within normal limits. The icterus was elevated to 10.6 units, the total protein was 6.16, the albumen 3.59 and globulin 2.57. Thymol turbidity test showed 2.2. units, alkaline phosphatase 11.9 Bodansky units and BSP 3 per cent retention at 45 minutes. The serology was normal and the patient was discharged on 1-13-53 for office management of his diabetes.

He was admitted for the second time at St. Dominic's Hospital on 3-8-53 after having been followed weekly in his physician's office. He had gained weight and had been fairly well regulated until the past week he had begun to have an increase in glycosuria. About the first of March, he began to notice progressive pedal and pretibial edema and about 3 days prior to admission to the hospital he mentioned abdominal enlargement and "tension". He also began to complain of acute pain in the epigastrium associated with dyspnea and progressive general weakness. A note was made at this time that his color had been more bluish-gray over the thorax than previously and he had begun to have frequent epistaxes.

On admission the blood pressure was 90/62. At this time he was described as being a well-developed, well-nourished, dyspneic and evidently acutely ill white male. The bronzing or bluing of the skin was quite obvious and many hyperpigmented macules were evident over the face, neck and thorax. His pulse was 100 per min. and regular, there was 2 plus pedal edema and obvious free fluid in the abdomen. The liver was enlarged to the pelvic brim, tender and nodular. The heart appeared enlarged to the left anterior axillary line and no murmurs were evident on the first examination. There was a protodiastolic gallop at the apex and the pulmonary second sound was greater than the aortic second sound. No diastolic murmurs were heard and no friction rubs auscultated at this time. There was an obvious decrease in percussion resonance in the lower one-fourth of the right lung posteriorly, associated with fine moist rales in this area. I was asked to see the patient on 3-9-53 and after reviewing and physical examination as stated above, agreed with the family physician that the most likely diagnosis was diabetes mellitus, hemachromatosis and hemachromatosis heart disease of recent onset. The development of acute congestive failure, predominantly right-sided in nature, in a young male, characterized by resistance to treatment and associated with cirrhosis, diabetes and pigmentation certainly suggested this diagnosis.

Second examination the same day (3-9-53) revealed a grossly irregular rhythm and an electrocardiogram taken at this time was interpreted as showing low voltage of the QRS complexes and rapid uncontrolled auricular fibrillation. An x-ray taken on the same date showed moderate to marked cardiac enlargement of a globular type with obvious pleural effusion at the right base and generalized increase in broncho-vascular markings throughout both lung fields. Cardiac pulsations were minimal but present and there was no specific chamber enlargement. Mr. CC was placed upon congestive failure routine, digitalized rapidly and started upon a low sodium diet and mercurial diuretics. His condition worsened, auricular fibrillation was uncontrolled with digitalis and several electrocardiograms on the same day and the following day revealed essentially the same findings, namely that of rapidly uncontrolled auricular fibrillation. Successive chest x-rays revealed progressive increase in cardiac size and an increase in the amount of pleural effusion and pulmonary congestion. Cyanosis and dyspnea worsened and the patient expired on 3-11-53 after a four-day hospital stay and only after 11 days of cardiac symptoms.

An autopsy report as performed by Dr. Forest Bratley is reported as follows: Grossly the heart weighed 400 grams and in situ it appeared that there was marked dilatation of the left ventricle and the right ventricle. There is also moderate dilation of the right auricle. The left ventricular wall measures 11 mm. in thickness and the right ventricular wall 3 mm. in thickness. The myocardium is flabby and has a reddish-brown color. The circumference of the valve orifices are as follows: Tricuspid - 128 mm., Pulmonic - 95 mm., Mitral - 122 mm. and Aortic - 71 mm. The orifices of the coronary arteries are widely patent, as are their lumens. There are two small plaques in the intima of the right coronary artery and the endocardium and valve leaflets present a normal appearance. Microscopically, fibrous tissues are diffusely increased in the myocardium and in the myocardial fibers there is brown pigmented material which chiefly occurs as fine granules and occasionally as spicules. This pigment contains iron and the adjacent cells to the endocardium are swollen, vacuolated and have poorly stained nuclei. Microscopic examination of the liver revealed fibrous tissue increase in the portal zones and numerical increase in bile ducts. All the liver cells except rare groups are filled with brown pigment which takes Prussian blue reaction. Abundant iron pigment is present in the portal zones. In the spleen large masses of hemosiderin are widely scattered throughout the pulp and in the pancreas the acinar cells contain large amounts of iron pigment and increase in fibrous tissue. Scattered cells in the outer zone of the cortex of the adrenal glands contain brown pigment and are compatible with hemathromatosis. A parapancreatic lymph node showed marked reticulum cell hyperplasia and pigment was present in large quantities.

Salient findings in this case were myocardial failure, pigmentation and hepatomegalia occurring in a young male with diabetes of recent onset. The association of this disease with heart failure had been reported in only 33 cases up to 1951, since this time 13 cases have been abstracted, giving a total of 46 cases in the literature to the present date. Twenty-two of these were quite similar to the case reported above in that they showed evidence of hepatic enlargement, pigmentation, acute or subacute congestive failure and hemachromatosis. Only two women were mentioned in this series of patients, however, both being young, 34 and 18 years of age respectively and in both amenorrhea was the initial symptom. Involvement of the heart in hemachromatosis is commonly associated with arrhythmias and electrocardiographic abnormalities of a non-specific nature. Congestive failure is the usual cause of death and medical treatment usually produces a poor response, the average period of survival after onset of cardiac symptoms being less than a year. The average age of death in this group with heart failure is around 38 years as compared with an average age of onset of between 45 and 50 years in those patients without clinical evidence of heart involvement. The cause of heart failure in hemachromatosis is not known. Post mortem examinations have shown varying degrees of iron deposition in the heart muscles of patients with and without heart failure. Sheldon in his monograph wrote, "Several cases have died with cardiac failure but on the whole, excessive deposits of iron laid down in this organ produce little clinical evidence of their presence". The complete lack of correlation between the extent of iron deposition in the myocardium and the presence of heart failure has led several French authors to invoke endocrine factors to explain the cardiac failure. Bothwell has undertaken radioiron studies in his reported cases and these patients showed an increased oral uptake of radio-iron when compared with the uptake in four older subjects suffering from hemachromatosis with no evidence of heart disease. In his two patients with heart disease, the percentage of the administered dose retained in the body and the blood and liver uptake were far higher than the older subjects without heart disease, although all had uptakes greater than normal. These results seem to indicate that young subjects with hemachromatosis absorb greater quantities of iron than the older subjects. The high incidence of heart failure in the young group can be possibly related to the fact that the disease is present in a more acute form and the fact that iron may be absorbed more rapidly in this group. On this basis, the myocardial damage would not be related so much as to the degree of iron deposition, as to the rate at which it is being laid down. Thus, it could possibly be explained why patients with heavy iron deposition in the cardiac muscle have shown no clinical signs of myocardial damage while others with less iron deposition have had extreme and irreversible heart failure.

Thanks are extended to Dr. Norman Burnstein, Jackson, Miss., for allowing me to see this patient in consultation.

This investigation was supported by Institutional Research Grants from The American Cancer Society, Inc., and The Damon Runyon Memorial Fund for Cancer Research, Inc.

PEDIATRICS

THE CLINICO-BACTERIOLOGIC EVALUATION OF FURADANTIN IN URINARY TRACT INFECTIONS. L. E. McCrea and T. Anderson. West Virginia M. J. 52: 293-300 (Sept.) 1956 (Charleston).

Furadantin (N - (5-nitro - 2 - furfurylidene) - 1 - aminohydantion) is a nitrofuran for systemic use. Furadantin is of low toxicity. When taken orally, approximately 45 per cent is excreted in the urine in an eight-hour period. Its antibacterial spectrum includes organisms commonly found in urinary tract infections. Observations were made on 100 consecutive patients with uncomplicated urinary tract infections treated with furadantin. A single bacterial species was cultured in 66 patients, while 34 patients had multiple infections. The usual dose was 100 mg. of furadantin given by mouth four times a day, although in overweight patients a dose twice that amount may be given. Intolerance to the drug, as demonstrated by nausea, may be controlled by giving 10 mg. of chlorpromazine (thorazine) simultaneously with each dose of furadantin.

Bacteriological cure was obtained in 59 of the 100 patients, and clinical cure was obtained in 61. In two patients who were cured clinically, the final culture was positive, but the organisms isolated were not the same as those considered to be the initial causal agents. The organisms were specimen, these two cases were not considered bacteriological cures. Bacterial culture is the most accurate method of diagnosis of urinary tract therapy. Routine urinalysis cannot be considered a criterion of cure in urinary tract infections, for in this group of patients there were some in whom cell-free specimens contained as many as 100,000 micro-organisms per cubic centimeter.

Comment: In my experience, furadantin has served as a very valuable adjunct to the treatment of infections in the urinary tract. Of course, this does not necessarily mean that we should not overlook the probabilities of other infections which could be primarily responsible for the infection. I have seen a number of cases of active pyelitis yield to furadantin in just a few days where others have failed.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

AAGP Meets

The American Academy of General Practice will meet March 25-28 in St. Louis. The Congress of Delegates will convene on Saturday, March 23. Every member should make this Assembly a *must* on his calendar. Besides an outstanding scientific program of lectures, panel discussions and exhibits, the business of your national organization is conducted. Every member has a stake in the work done and the decisions that will be made.

Mark your calendar, and make your reservations, NOW! (Reservation for hotel rooms can be made by sending in blank found in the November issue of the *Journal GP*, page 189.)

Getting Acquainted

This is the fifth installment of the roster of MAGP members. (Members in Districts I, II, III, IV were listed previously)

Executive Committee Meets

The MAGP Executive Committee met November 1 in Jackson. It voted to accept an offer by the National Drug Company to sponsor a guest speaker at the next Annual Assembly in September 1957. The Committee voted to request permission of the Commission on Membership and Credentials to use option No. 2 in evaluating and certifying active members for re-election to membership. If permission is granted, all postgraduate study reports should be sent to the Mississippi Academy executive secretary instead of to national headquarters. Further developments will be announced on this page.

News Bits

Nominations for membership have been accepted for two Mississippi physicians. Dr. Richard E. Schuster of Lambert and Dr. C. G. Nichols of Leland, are now associate members in the Academy. Congratulations and welcome, gentlemen!

In the recent Central Medical Society election, held in Jackson, Dr. Wm. E. Lotterhos, immediate past-president of MAGP, was elected president-elect and Dr. James R. Cavett, Jr., was named to the board of censors. Academy member William M. Wood of Carthage assumed the job of president for the coming year.

Brand new member of MAGP, Richard E. Schuster of Lambert, attended a two-week course in public health emergencies arising from enemy attack or national disaster. The course, conducted by the U. S. Public Health Service in Washington, D. C., included such topics as biological warfare and nuclear weapon defense.

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THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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MERRY CHRISTMAS !

We want to wish for every reader of the *Mississippi Doctor*, for every friend, for every advertiser, and for every one who has given us a word of encouragement a very Merry Christmas and a Happy and Prosperous New Year.

UTILIZE OUR OLDSTERS

The average age at death from heart disease is 68 years. The percentage of our population past 65 years is increasing so much that it is causing great concern because of what it may do to the social and economic life of our nation. Geriatrics is the science that treats of the clinical problems of the aged. Gerontology is the scientific study of the aging process. Pediatrics has been adding to life expectancy by saving the babies and treating the children. Good care for the baby and the young child will add years to life on the western shore and make him stronger and more useful.

The aged may become a problem in human affairs, but we think it is over estimated at this time. Our trouble is that we are failing to utilize the wealth of the men past sixty-five or seventy. They have the knowledge, the wisdom and the spiritual traits to enrich our nation if we would utilize their assets. If a man keeps mentally and physically fit he may be worth more to human society every day he lives even though he lives to be a hundred.

Moses lived to be 120 years and his eyes were not dimmed nor his natural forces abated. General Lee Meriwether of Saint Louis, a native of Columbus, Mississippi, appeared on the Goodwyn Institute in Memphis on December 4. He is 94 and was full of vim and vigor as he discussed his personal acquaintance with General Bedford Forrest and Jefferson Davis. Think of the men we have in our association past seventy who are still active and rendering a fine service.

A pension and an arm chair in the corner is not the answer to the problem of the aged, if there be a problem. They want to be respected and appreciated and want to continue to render service. They know that if they withdraw from life, life withdraws from them. In the plan of creation there seems to be no place for waste. We should not waste the wealth we have in the aged. The majority of men past 80 years want to do something. An octogenarian may not be able to hoe as many rows of corn as when he was young, but his judgment in thinning it will more than make up for it.

The question of social security for doctors seems to be coming up afresh for re-consideration. It probably should. Maybe all the facts should be laid on the table and looked at again.

The practice of Christian ethics is the most important factor in practicing ethical medicine.

COVER CHARGE

Banquet tickets at medical societies are about as high now as table salt in the South during the War Between the States. The seller of tickets may apologize and say, "but this includes the drinks." Present day exponents of human affairs would have you believe that whisky as a beverage is as essential as air and water and more so than bread. The consumption of whisky as a beverage is incompatible with the machine age in which we live. Accidental deaths and accidental injuries constitute the biggest challenge to American society and whisky is a major factor in causing both.

Some convention banquets now are financed by the biological houses. In this case the patient finally pays the bill in the price of his medicine and he does not have enough left to pay the doctor, so the sober doctor might as well pay his cover charge direct.

PLAN TO ATTEND THE MID-SOUTH

The meeting of the Mid-South Postgraduate Medical Assembly is just around the corner. February will soon be here. Save time out for the Mid-South. It is really the father of this type of meeting. For many years it has been excellent, giving a fine review of the latest and the best in medicine and surgery in a five-day and night review. A wonderful program is in the making.

A fine medical spirit is to be found in the city of Memphis where the nation's largest medical school is located. The fraternal spirit in Memphis is always superb.

The exhibitors have had a big part in building and maintaining the Mid-South. They love to come to Memphis. The Peabody Hotel is well arranged and well suited to such a meeting. All the doctors hear every paper, if they like, with just one essayist speaking at a time. The plan of the Mid-South has a broadening influence for every one. Make your reservation now at the headquarters hotel, the Peabody Hotel.

FEASIBLE

When an indigent patient in a local hospital needs special treatment or is of clinical interest to contribute to our teaching hospital at Jackson, it seems that the sensible thing would be to transfer him to the central hospital and let the state funds follow him to this institution. This would help the teaching hospital somewhat and it would make clinical material available from all over the state.

MAGP

The Academy of General Practice has done well in Mississippi. It has as its leaders some good sound men. It is helping to raise the efficiency average of practitioners. It has now as its president one of the state's ablest and best balanced men in the profession, Dr. A. V. Beacham. Dr. Beacham knows the practice of medicine and surgery from wide experience and he knows the problems of hospitals as well. He has just served as president of the State Hospital Association.

GIVE IT

One of the most valuable magazines published in the United States at this time is *Today's Health*. It is published by the American Medical Association and should be read by every doctor and every lay family. It should be in every library, including church libraries. It points the way to healthier living. It informs the lay public so that the doctor can render better service. It helps to bring about a better understanding between the doctor and the public. It is doing a steady work in helping to build health assets, mental and physical. It is fine for doctors to send a few copies as presents for the year. It would be well for them to take subscriptions for clubs. For information, write *Today's Health*, 535 North Dearborn St., Chicago 10, Illinois.

News and Comment

SOUTHERN MEDICAL REGISTERS RECORD ATTENDANCE

The Southern Medical Association held its Golden Anniversary meeting in Washington, November 12-15, with about three thousand doctors attending. The scientific program was unusually good, the fraternal spirit fine, and the weather for a few days in the nation's capital, perfect. President Eisenhower extended his cordial welcome to the meeting by telegram.

Headquarters of the meeting was at the Sheraton Hotel, the hotel once owned by George Ed Allen who is the jovial friend of presidents and who was born and reared in Booneville, Mississippi.

Dr. Raymond McKenzie of Baltimore, Maryland, presided as president and Dr. J. P. Culpepper of Hattiesburg was installed as president at the close of the meeting. Dr. Kelley West of Oklahoma City comes in as president-elect. His father as we recall went from Waynesboro, Mississippi, to Oklahoma and has had a hand in building the great medical school at the capital city. Dr. Milford Rouse of Dallas was elected as first vice-president at the close of the meeting.

Dr. Guy T. Vise of Meridian presided over the Section on General Practice. He presided exceedingly well and his program was fine. His chairman's address on dehydration in treating colds created much comment. Dr. Walter Alvarez appeared on his program. His subject was "Little Strokes" and it was interesting and informative.

One of the best sections we attended was that of Pediatrics. The symposium on geriatrics presided over by Dr. Rouse was equally interesting and informative. This new specialty is creating much interest in the field of medicine because of its important relation to the social and economic life as well as the health of the people.

Dr. John Lucas is the Mississippi councilor of the Southern at this time.

The next meeting will be in Miami Beach, Florida.

NEW ORLEANS POSTGRADUATE

The New Orleans Graduate Assembly meets March 11-14, 1957.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. The program will include fifty-four informative discussions on many topics of current medical interest, in addition to clinicopathologic conferences, symposia, scientific exhibits, medical motion pictures, round-table luncheons and technical exhibits.

The Assembly has planned another interesting postclinical tour to follow the 1957 meeting in New Orleans. On Saturday, March 16, a party composed of doctors and their families, will leave from New York for the Mediterranean and Europe via plane. The itinerary includes France, Greece, Turkey, Egypt, Jerusalem, Lebanon, Syria and Italy. Arrangements have been made for medical programs in the places visited. The official tour terminates in Rome on Friday, April 12, but arrangements may be made for independent travel to any points in Europe desired, with return to the United States by air or steamer.

Details of the New Orleans meeting and the postclinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

FAMILY DOCTOR: "Something the patient wishes he had when illness strikes in the middle of the night." Spencer Y. Bell, President, Tenn. Academy of GP.

INSTITUTE

The ninth annual Institute in Psychiatry and Neurology will be held at the Veterans Administration Hospital, North Little Rock, Arkansas, on February 28 and March 1, 1957. Participants will include Dr. Francis J. Braceland, Institute of Living, Hartford, Connecticut, President, American Psychiatric Association; Dr. Esther Lucile Brown, Director of University and Community Relationships, Boston University School of Nursing, Boston, Massachusetts; Dr. Donald A. Covalt, New York University Bellevue Medical Center, New York, New York; Dr. Iago Galdston, New York Academy of Medicine, New York, New York; Dr. William E. Gordon, Professor of Research, George Warren Brown School of Social Work, Washington University, St. Louis, Missouri; Dr. E. Lowell Kelly, Professor of Psychology, University of Michigan, Ann Arbor, Michigan; Dr. Louis A. Krause, University of Maryland School of Medicine, Baltimore, Maryland; Dr. L. H. McDaniel, Tyronza, Arkansas; Dr. William S. Middleton, Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.; Dr. Earl G. Planty, Professor of Management, University of Illinois, Urbana, Illinois; Mr. Winthrop Rockefeller, Little Rock, Arkansas; Dr. Lewis R. Wolberg, New York, New York; and Dr. Harold G. Wolff, the New York Hospital, New York, New York.

PHI CHI FRATERNITY ORGANIZED

An alumni chapter of the Phi Chi Fraternity has been organized. The secretary is anxious to hear from all Mississippi physicians who are Phi Chis, so that a roster of members may be compiled. A postal card will do, and should be mailed to Alumni Secretary, Phi Chi Fraternity, 653 North State Street Jackson 2, Mississippi.

GUEST SPEAKER

Dr. Harwell Wilson of Memphis, professor of surgery, University of Tennessee, was guest speaker in New Orleans on November 4, at the ninth annual meeting of the Surgical Association of Louisiana. The subject of Dr. Wilson's address was "The Acute Surgical Abdomen."

CHICAGO MEETING OF ACS

An intensive course on fractures and other trauma will be offered to all interested members of the medical profession by the Chicago Regional Committee on Trauma of the American College of Surgeons. The course will be held for three and one-half days, from April 10 to 13, 1957, at the John B. Murphy Auditorium, 50 East Erie Street, Chicago.

CARDIOVASCULAR SEMINAR

The fourth annual Cardiovascular Seminar, sponsored by the Mississippi Heart Association, will be held at the University Medical Center in Jackson on April 1-5, 1957.

Co-sponsored by the University of Mississippi School of Medicine and accredited by the American Academy of General Practice for 30 hours, Category I, the seminar will offer a seven-man visiting faculty.

Lecturers are to be: Dr. H. Mitchell Perry, associate professor of internal medicine and director of the Hypertensive Clinic, Washington University; Dr. Andre Cournand, associate professor of medicine and director of the Cardiopulmonary laboratory, Bellevue Hospital, Columbia University Division; Dr. Robert P. Glover, professor of thoracic surgery and director of the Cardiovascular Research Laboratory, Presbyterian Hospital, Philadelphia, Pa.; Dr. Homer W. Smith, professor and chairman of physiology, New York University; Dr. Robert F. Ziegler, chairman of the division of pediatric cardiology, Henry Ford Hospital and Dr. Denton Cooley, associate professor of surgery, Baylor University College of Medicine.

The program will be arranged so that participating physicians who are unable to attend the full five days can select those days pertaining to their specialties or particular interests.

Exact lecture topics are yet to be determined. Case presentations, CPC's and cardiac rounds will be included in the course. The Mississippi Heart Association annual meeting will also be held.

ACADEMY OF MEDICINE OF CINCINNATI

The Academy of Medicine of Cincinnati cordially invites all physicians, their families, and their patients to its 100th Birthday Party, February 27 through March 5, 1957. In order to observe the occasion, a Health Museum and Exposition will be established in Cincinnati's spacious and historic Music Hall. Notable among the 175 health and scientific exhibits and occupying 4,000 square feet of space, will be an atomic energy exhibit from the American Museum of Atomic Energy entitled "Atoms for Peace."

In the main foyer of the hall, "Juno," a full-sized, activated manikin, graciously loaned for the occasion by the Dominican Republic, will be on display. Juno is operated electrically, and with concurrent recorded narration, will demonstrate blood vessels, bones and organ structures of the body.

Dr. Paul D. White and Dr. Walter Alvarez, noted medical scientists and authors, have accepted invitations to be among the distinguished guest speakers.

The Centennial Convocation will be held on the last night of the Exposition, March 5, 1957. The Convocation address will be given by Sir Edward Appleton, Nobel Laureate, Edinburgh, Scotland, and civic leaders, officials of both the American and State Medical Associations, and government dignitaries will take part in the elaborate ceremonies.

ATLANTA GRADUATE MEDICAL ASSEMBLY

Time: February 18, 19, and 20, 1957.

Place: Atlanta Biltmore Hotel, Atlanta, Ga.

Speakers: Drs. Eugene Stead, Jr., Sol Kratz, W. D. Snively, Donald A. Covalt, James Hughes, Howard Mahorner, Mark B. Coventry, William F. Mengert, Herbert E. Schmitz, Edward P. Cawley, Arthur P. Stout, Jos. H. Burchenal.

THE AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

The annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held September 8-13, 1957, inclusive, at Hotel Statler, Los Angeles.

In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists who are registered with the American Registry of Physical Therapists or the American Occupational Association.

Full information may be obtained by writing to the Executive Secretary, Dorothea C. Augustin, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

THE SOUL OF THE SURGEON

A fitting remembrance at this time of the year to a professional friend, young or old, would be a copy of the inimitable Dr. Rudolph Matas' *Soul of the Surgeon*. $1.75 per copy from Milwick Printing Company, Booneville, Miss., or J. A. Majors Book Company, New Orleans, La.

Deaths

DR. FRANCIS DIXON

Dr. Francis Dixon, prominent physician and surgeon of Natchez, died at his home there October 1. Born in Natchez, the son of the late J. F. Dixon and Mrs. Jennie Dixon, he was 56.

Dr. Dixon was a graduate of the University of Mississippi and the Tulane Medical School. He interned at Touro Infirmary, New Orleans, La. Prior to studying medicine, he had been connected with the Britton and Koontz National Bank of Natchez. He had been a member of the vestry of the Natchez Trinity Episcopal Church. He was a member of the American Medical Association, the Homochitto Valley Medical ASociety, and was a fellow of the Royal College of Surgeons.

He is survived by his widow, Mrs. Virginia Butler Dixon, Natchez, formerly of New Orleans, two brothers, John F. Dixon and Joseph F. Dixon of Natchez; three sisters, Mrs. Marion G. Stewart of Natchez, Mrs. Horace Roberts of Jackson, and Mrs. Eliza Calhoun of Baton Rouge, La.

DR. ANDREW J. BRAND

Services for Dr. Andrew Jackson Brand, 88, were held October 7 at the Chapel of Lane Memorial Church, with Rev. W. M. Jones of Aberdeen officiating.

Dr. Brand has practiced at Buena Vista in Chickasaw County and Prairie in Monroe County as the only locations of his professional career. He was born in 1867, a native Mississippian, was graduated from the Memphis Medical College in 1901. His license was granted the year before by examination.

Dr. Brand was a member of the Mississippi State Medical Association and the Fifty-Year Club.

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ANNOUNCING

The Twentieth Annual Meeting
THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

CONFERENCE HEADQUARTERS — MUNICIPAL AUDITROIUM

March 11, 12, 13, 14, 1957

GUEST SPEAKERS

Emery A. Rovenstein, M.D., New York, N. Y.
Anesthesiology
Nelson Paul Anderson, M.D., Los Angeles, Calif.
Dermatology
J. Edward Berk, M.D., Detroit, Mich.
Gastroenterology
Erle Henrikson, M.D., Los Angeles, Calif.
Gynecology
Ovid O. Meyer, M.D., Madison, Wis.
Internal Medicine
Irvine H. Page, M.D., Cleveland, Ohio
Internal Medicine
Barnes Woodhall, M.D., Durham, N. C.
Neurosurgery
John E. Savage, M.D., Baltimore, Md.
Obstetrics
C. Dwight Townes, M.D., Louisville, Ky.
Ophthalmology
Don King, M.D., San Francisco, Calif.
Orthopedic Surgery
Glassell S. Fitz-Hugh, M.D., Charlottesville, Va.
Otolaryngology
Malcolm B. Dockerty, M.D., Rochester, Minn.
Pathology
Sydney S. Gellis, M.D., Boston, Mass.
Pediatrics
Karl Zimmerman, M.D., Pittsburgh, Penna.
Proctology
Laurence L. Robbins, M.D., Boston, Mass.
Radiology
Danely P. Slaughter, M.D., Chicago, Ill.
Surgery
C. Stuart Welch, M.D., Albany, N. Y.
Surgery
William L. Valk, M.D., Kansas City, Kan.
Urology.

Lectures, symposia, clinicopathologic conferences, round-table luncheons, medical motion pictures, scientific exhibits and technical exhibits.

(All-inclusive fee — $20.00)

THE POSTCLINICAL TOUR TO THE MEDITERRANEAN AND EUROPE

Leaving March 16, 1957 from New York

For information concerning the Assembly meeting and the tour write Secretary,
Room 103, 1430 Tulane Avenue, New Orleans 12, La.

The Acute Surgical Abdomen

ARNOLD S. JACKSON, M.D.*
Madison, Wis.

A patient suffering from an acute abdominal complaint may present a difficult diagnostic problem to the attending physician. For example, in a child, the physician must consider, in particular, the possibility of pneumonia or pyelitis. In an adult, coronary occlusion, gastroenteritis, typhoid fever, and other medical conditions must be ruled out. In women, salpingitis, ruptured graafian follicle (mittelschmerz), pregnancy and tubal pregnancy must be considered as well as pyelitis, renal and ureteral calculi, and ureteral spasm. Having as nearly as possible eliminated these and other conditions, the physician must then decide whether or not the case is surgical and, if it is, whether operation is imperative or should be delayed.

In the upper abdomen at least three important surgical conditions must be considered: perforated ulcer, cholecystitis, and pancreatitis.

The history is of great value in deciding whether or not the patient has a perforated ulcer. While 25 per cent of these cases give no previous history of ulcer, 75 per cent will have a typical spring and fall gnawing pain on an empty stomach. The characteristic gunshot type of pain of perforated ulcer is unlike that of any surgical disease. The patient usually is found sitting up in bed, with an anxious pained facies, perspiring profusely. Within an hour after the onset, the characteristic boardlike rigidity of a chemical peritonitis develops, and a flat x-ray plate of the abdomen usually shows the telltale gas bubble below the diaphragm. At first the temperature and leukocyte count may be normal.

For several decades, opinions generally favored immediate operation and closure of the perforation with a few interrupted sutures and with a tag of omentum as covering. With the advent of antibiotics and sulfonamides, some difference of opinion resulted. Drainage has largely been discarded in the cases seen within eight hours of perforation. Some have treated these cases nonsurgically depending upon antibiotics, but the results do not seem to justify this radical departure.

Still another group has advocated gastric resection, on the basis that in many of these cases obstruction, bleeding, and occasionally reperforation subsequently occur. Among those advocating this procedure is Dr. Dewey Bisgard, professor of surgery at Nebraska Medical School. In a recent issue of the *Journal of the American Medical Association,* he presented a strong argument for immediate resection. However, many surgeons qualified to close a perforation may not be qualified to do a gastric resection, especially under emergency conditions. In my own experience, very few perforated ulcer cases have later required gastric resection, providing the patient gave up the use of stimulants and eliminated other responsible factors.

Considerable difference of opinion also has developed regarding the treatment of acute pancreatitis. This condition should be considered in a patient experiencing severe upper abdominal pain, fever of 103°F to 104°F, rapid pulse, high leukocyte count, and great prostration. The serum amylase test may clinch the diagnosis. Cage and Ochsner and others have advocated nonsurgical treatment, reporting excellent results with sympathetic block. This method has not been highly successful in my small series of cases, in several of which I have operated in order to establish a definite diagnosis. In many instances where gall stones were present, these have been removed and cholecystostomy performed with good results. In other patients who were nearly moribund on admission, neither nerve block, antibiotics nor anything else has availed.

The diagnosis of acute cholecystitis is usually not difficult. There may be a history of previous attacks. Pain may be colicky in nature along the right costal margin or referred to the back. There is often nausea, vomiting, and moderate fever with marked right upper abdominal tenderness and an elevated white blood cell count and elevated sedimentation rate.

The problem of what to do is debatable. Some surgeons advocate immediate operation; others are more conservative. I favor the latter method unless the leukocyte count and temperature are rising, suggesting developing empyema. With antibiotics and intravenous fluids, I believe that most patients are in better condition for surgery after a few days' delay, although admittedly the edema of the biliary tract area may have increased.

Of all conditions in the middle and lower abdomen, intestinal obstruction is probably the most important, because the diagnosis is still too often delayed and the mortality is still too high, despite all the advances in medical science.

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*Presented before the Section on Surgery at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

Strangulated hernias are still coming to operation and occasionally so late as to require resection. Cancer of the colon is often not recognized until the patient is brought in to the hospital with all the signs of acute obstruction. One of the most frequently overlooked causes of obstruction is from adhesions from surgery performed a decade or two before. Volvulus and intussusception, the former in the elderly and the latter in infants, are other causes.

In obstruction of the small bowel, vomiting and visible peristalsis with crampy pains, normal temperature and blood count, and a characteristic x-ray picture may be the clue. With obstruction of the colon, vomiting may not occur until late, but increasing constipation and family obstruction and abdominal distention are typical. The x-ray is most helpful in the form of a barium enema in locating malignancy of the colon, but the bowel should be free of barium before surgery is performed.

In suspected acute obstruction, all hernial orifices should be carefully examined, especially the femoral in a female.

It is often a problem to decide when conservative treatment, such as the indwelling catheter or the Miller-Abbott tube, should be instituted and when immediate surgery should be performed. The condition of many patients can be improved by instituting conservative measures, such as gastric suction, intravenous fluids, and enemas in certain cases, but any delay in other cases may prove disastrous. No fixed rule can be used, but each case must be treated according to its special indications.

The diagnosis of acute mesenteric thrombosis is not an easy one. The cases are so few that no one has any considerable series to report. It may be suspected in a middle-aged or elderly person, who has an onset of mild abdominal pain, whose abdomen has a doughy feeling, whose heart is fibrillating or has done so, and who is definitely ill. Blood may or may not have been passed by rectum. If, on opening the abdomen, the condition is found, heparin should be given intravenously, resection of the involved bowel performed, dicoumarol started by mouth, and a prayer offered.

Mesenteric lymphadenitis sometimes confuses the diagnosis of appendicitis, especially when it occurs in children. As a rule, however, the pain is less severe and may occur on both sides of the abdomen. Nausea, vomiting, and fever are infrequent and the leukocyte count is variable. The cause of this disease is unknown, but it has seemed to me to be a low grade infection of the lymphatic system possibly due to the drinking of unpasteurized milk. It seldom causes symptoms in persons over 30 years of age.

Acute regional enteritis is another condition occasionally confused with appendicitis. Its etiology also remains unknown, and there is no general agreement concerning its treatment. Garlock has recently advocated the sidetracking operation as the best procedure, while Dixon and others favor resection of the bowel. The disease tends to recur regardless of the mode of treatment. In my own experience, limited to a small series of cases, resection has given the best results.

Perforated diverticula often result in a self-limited localized peritonitis and, as such, should be treated without surgery. In case of abscess formation, the latter must be drained, and a temporary transverse colostomy may be necessary with later resection of the diseased colon. This is the method advocated by Walters and Cattell.

The subject of the traumatic abdomen is one of such magnitude as to require the time consumed for this entire discussion. In general, it may be said that, if in doubt as to possible rupture of viscera, it is better to operate and explore. Unfortunately, both the intestine and the spleen have a tendency to temporarily close off the tear and mask the symptoms. I have operated upon ruptured liver and spleen cases as long after the original injury as two or three weeks. Thirty-five years ago I had the misfortune to lose a young man who had been kicked in the abdomen during a football game. Twenty-four hours after the game he appeared in normal condition in every way, but two days later he died from peritonitis from a torn jejunum.

Shortly before the advent of the sulfa drugs, I published a paper, hoping to focus attention on the tremendous loss of life in the country from appendicitis. Most of the deaths resulted from unwarranted watchful waiting on the part of the patient, his family, the examining doctor, or the surgeon. The title of that paper was "A Half Million Deaths From Appendicitis." According to the Bureau of Vital Statistics, this was the number of deaths that occurred over a period of thirty years. Fortunately the advent of the sulfa drugs and of the antibiotics has changed this entire picture, and the death rate from appendicitis today approaches only about five hundred a year. Each year this figure is being reduced.

In 1947 I presented a paper before the Western Surgical Association, advocating nondrainage in peritonitis resulting from perforated appendicitis. Although this idea was not original, drainage was then generally employed. Since 1941, I have not drained a case of this type and there have been no deaths, no infected wounds, and no postoperative complications in these cases. Intraperitoneal sulfathiazole powder (10 gm. in saline) has been used in all cases, and, since penicillin came into use, this has been added.

SUMMARY

Some of the salient points in the diagnosis and treatment of 10 acute surgical conditions of the abdomen are considered.

The importance of eliminating certain nonsurgical conditions as coronary occlusion, pyelitis, salpingitis, and enteritis is emphasized.

Many other possible surgical abdominal conditions must be considered, but these are of infrequent occurrence and consequently are not discussed.

Laboratory aids are of material assistance, such as the x-ray in perforated ulcer or intestinal obstruction. The leukocyte count and, in particular, the differential white blood count may be valuable in diagnosing appendicitis.

No laboratory test is infallible, and experience, coupled with good judgment, is in the final analysis most important in determining whether or not surgery is imperative in the acute abdomen.

Simple Mastectomy in the Treatment of Carcinoma of the Breast*

DAWSON B. CONERLY, JR., M.D.
Hattiesburg, Miss.

In our present era of extended radicalism in cancer surgery a discussion of this type may seem to be a regressive trend. I assure you it is not my intention to attempt to push the frontier of cancer surgery back a half a century. To dispel any misconception may I emphasize at this time that I do not perform nor do I advocate simple mastectomy for the treatment of truly operable carcinoma of the breast.

However, it is rapidly becoming apparent that we must modify our thinking concerning the surgical treatment of carcinoma of the breast. The numerous inadequacies of the concept of standard radical mastectomy as the preferred treatment of operable carcinoma are forcing such an attitude. Halsted's principle of block dissection has dominated the entire thinking in regard to cancer of the breast for sixty years. We are all aware of the all too often futile effort to get beyond the microscopic advancing edge of the spreading cancer once it has reached the axilla. In fact, pathologically and statistically, it is seldom that a block dissection of the axilla after the tumor has reached there actually removes the carcinoma. This presentation is primarily an evaluation of a palliative procedure in the management of cancer of the breast. When we realize that approximately fifty per cent of the patients who initially present themselves for the treatment of their carcinoma ultimately die of this disease, the method of palliation assumes considerable importance. We tend to ignore the fact that our preferred method of treatment, radical mastectomy, is carried out in highly selected case material in that only the more favorable cases are subjected to this procedure. It is my conviction that this selection should be even more rigid and furthermore in the final analysis this should be an operative selection.

Having observed several patients who had received a remarkable degree of palliation of their disease by a simple mastectomy and had remained both socially and economically useful members of society for prolonged periods, we obtained follow-ups on 61 cases of carcinoma of the breast initially by this procedure at Vanderbilt University Hospital[1].

With no exception each of these patients was refused a radical mastectomy either because of clinical inoperability or advanced age or debilitating disease; furthermore our criteria of operability were quite liberal and radical mastectomy performed in all instances in which the carcinoma was thought to be within the confines of a block dissection regardless of the nature of the primary lesion or the size or number of axillary metastases.

Nine of these sixty-one cases had distant metastases at the time the simple mastectomy was performed. Of the remaining fifty-two cases, there were twenty five-year survivals or a five-year survival of 38.4 per cent. The majority of our patients were in the older age groups, and in support of the influence of age on survival, most of our five-year survivals were also in the older age groups. This was most vividly demonstrated in the age group 70-80 where out of a total of twenty patients there were nine five-year survivals. Many of these patients lived over ten years and were spared the inconvenience of a foul ulcerating lesion of the anterior chest wall. Although many patients had postoperative x-ray therapy, it is of interest that only six of the five-year survivals had x-ray therapy initially although several had x-ray therapy for recurrences.

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*Presented before the Section on Surgery at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

Seventeen of our patients had the carcinoma clinically confined to the breast preoperatively. That is, there were no clinical axillary metastases. Only four of these seventeen cases died in less than five years following simple mastectomy and actually only one of those four died of metastatic carcinoma. The remaining three patients who survived for less than five years died of unrelated causes and two of the three had no evidence of carcinoma at autopsy. In this group with no clinical metastases there was a 76.5 per cent five-year survival.

The results obtained by simple mastectomy in those patients with clinical evidence of axillary metastases has been poor. The over-all five-year survival rate was only 17.1 per cent. This latter group of course represents that incurable group that were refused a radical mastectomy because they were incurable initially.

A comparison of the five-year survival rates of simple mastectomy and that of radical mastectomy at the same institution presents an interesting parallel. The results were good in either procedure when the carcinoma was confined to the breast and impressively poor by both procedures when the carcinoma had reached the axilla. In the evaluation of 207 radical mastectomies for carcinoma and fifty-two simple mastectomies the five-year survival following radical mastectomy in the absence of microscopic axillary metastases was 75.8 per cent and following simple mastectomy without clinical axillary metastases there was a 76.5 per cent five-year survival. In the presence of axillary metastases there was a 28.1 per cent five-year survival following radical mastectomy and a 17.1 per cent five-year survival following simple mastectomy. Considering all cases the radical mastectomy gave a 42.5 per cent five-year survival and the simple mastectomy 38.4 per cent five-year survival.

These were not of course comparable series. The simple mastectomy group were refused the preferred method of therapy, radical mastectomy. Secondly, the presence or absence of axillary metastases in the simple mastectomy series was a clinical evaluation; whereas in the radical mastectomy series this was a microscopic evaluation.

This is an admittedly small series of patients and could not withstand careful statistical analysis. Therefore, I present Deaton's series collected from the literature for numerical support[2]. He found that of 808 patients subjected to simple mastectomy there was a 59.8 per cent five-year survival. Deaton also reports that of 2,955 collected cases subjected to radical mastectomy there was a 54.5 per cent five-year survival. All of the simple mastectomy patients were apparently given x-ray therapy postoperatively. These results following simple mastectomy were largely reported from the foreign literature since this procedure has never been very popular in this country. These results are exclusive of McWhirter's results. McWhirter has reported a very large series in which all patients are subjected to routine simple mastectomy and x-ray therapy[3]. He reports a 56.4 per cent five-year survival. His five-year survival rate has not been surpassed by any reported in this country by radical mastectomy.

Information presented thus far has been in support of simple mastectomy. The following information illustrates why the results obtained so closely approach that of standard radical mastectomy. Several years ago Handley and Thackray acutely emphasized their findings on routine internal mammary chain biopsies at the time of radical mastectomy[4]. In a total of 50 cases they found nineteen or approximately one-third of the patients to have internal mammary chain metastases. In other words one-third of their cases had surgically demonstrable metastases beyond the hope of a cure by radical mastectomy. On the basis of their findings Hutchinson[5] carried out a similar study on eighty-one consecutive private patients and found one-fourth of his patients to have internal mammary metastases at the time of radical mastectomy. More recently Haagensen and Stout[6] have reported on 104 cases subjected to a similar study and found one-third to have internal mammary metastases surgically demonstrable beyond the confines of a standard radical mastectomy. Approximately 50 per cent of those patients with axillary metastases had internal mammary node involvement. Wangensteen[7] and also Urban[8] in their ultraradical procedures have found a similar percentage of involvement of the internal mammary nodes.

There has been a rather consistently higher incidence of internal mammary involvement in medially located breast lesions. However, in view of the recent emphasis on the importance of the subareola plexus of lymphatics it is apparent why such metastases are found in laterally located breast tumors.

For surgeons, statistics must be regarded with some reserves especially if they pertain to arguments supporting one method of therapy to the exclusion of another. Whereas differences in survival between different means of therapy may not be of any statistical significance, yet the small difference of a single life saved is of considerable significance to that particular individual. Nevertheless, the selective limitations of radical mastectomy must be appreciated.

The primary basis of selection of patients for radical mastectomy has been the clinical evaluation as to whether or not the carcinoma has progressed beyond the confines of a block dissection. Obviously it seems unwise to perform a simple mastectomy for theoretically curable carcinoma of the breast that could be excised completely with a block dissection of the axilla of the standard radical mastectomy type. Contraiwise it seems inadvisable to subject a patient to the increased morbidity of a radical mastectomy in the presence of spread beyond the confines of block dissection. Consequently we are forced to make a more rigid selection of patients for radical mastectomy. In order to make a more rigid selection of patients for radical mastectomy it seems imperative that the internal mammary chain should be biopsied and subjected to frozen section before radical mastectomy is performed and the standard radical procedure abandoned in favor of simple mastectomy and x-ray therapy if carcinoma is found. In that situation radical mastectomy becomes a palliative procedure and there seems to be no benefit beyond that obtained by simple mastectomy and x-ray therapy. In other words, to the usual criteria of operability of carcinoma of the breast an operative criteria should be added. We are constantly impressed with the inadequacies of the clinical evaluation of the presence or absence of axillary node metastases. We should apply the same reasoning to the internal mammary chain.

Excision of a portion of the internal mammary chain for biopsy is a very simple operative procedure which adds only a few minutes to the duration of the operation and should have no significant operative complications. It can be a quite rewarding procedure from the prognostic standpoint and in illustrating the need for postoperative x-ray therapy even if one does not allow the conclusions reached thereby to alter the primary surgical approach.

I have routinely biopsied the internal mammary chain in all carcinomas of the breast for the past four years. On the basis of my own experience, which parallels the information presented only on a smaller scale, it is quite sobering to find metastatic carcinoma in the internal mammary chain with such regularity.

In conclusion, I would like to repeat the words of Sir Henage Ogilvie, "Palliation in cancer surgery is not always a life prolonged; it is a life made more tolerable while it lasts and an ending made more serene when it comes."

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DISCUSSION

Dr. E. H. Winn, Jr. (Greenville)—It has been quite interesting to hear this excellent paper by Dr. Conerly for I had the good fortune to be with him in Nashville for several years, and I am expressly glad that he chose to return to Mississippi permanently.

I want to thank him for asking me to discuss this paper, for certainly the subject of simple mastectomy, as to its place in the treatment of carcinoma of the breast, is still somewhat controversial. I am not an exponent of Dr. McWhirter, and feel very strongly, as does Dr. Conerly, that no patient with carcinoma of the breast that fits into the category of operability should be denied the so-called standard radical Halstedian procedure. But we are all cognizant of the fact that the criteria of inoperability should be extended to a finer point. Statistical evaluation of series of patients throughout the world who have been treated for carcinoma of the breast all point out the fact that we are not achieving five-year survivals in carcinoma of the breast in over 50 per cent of the over-all number. It is the grief and tragic demise of those who die that focuses our attention on this problem.

Of course variations in findings at times to suit the subjective feelings of the persons compiling statistics comes into the picture. So, really one is hard put to evaluate the situation truly objectively from the literature. I often recall what Dr. Barney Brooks once said about persons using excessive amounts of statistics. He said "such an individual reminded him of the drunk who was wrapped around the lamp post. He was using the lamp post more to lean on than for illumination."

Because of our surgical inadequacies, there is a need for a wider appreciation of the fact that certain criteria are present which make a great number of cases of carcinoma of the breast categorically inoperable. These criteria are set forth more expressly by Dr. Haagensen and quoted in many of the surgical journals. It is in this direction that Dr. Conerly has advocated internal mammary chain biopsy prior to radical excisional therapy to narrow the indications for radical surgery. This is certainly in line with what Dr. Haagensen does in biopsying the second, third, and fourth rib interspaces and a supraclavicular node when a positive biopsy of the primary site in the breast has been found. I feel that such biopsies should be done prior to radical surgical removal of the breast for carcinoma.

If we adhere to the criteria of inoperability, it becomes obvious that a large group of patients would fit into the category of being inoperable. It is for this group, on an individual basis, that simple mastectomy and irradiation therapy may offer great amounts of palliation. I do not feel that one can take a chance on clinical judgment alone, and say that the cancer is still confined to the breast and advise simple mastectomy, with or without irradiation. There are certain patients, too, who are not categorically inoperable, whose general condition or age might cause one to consider simple mastectomy and postoperative irradiation.

It is my feeling that the so-called supraradical procedure must be used for individual caes only until we have more extended follow-up studies and a greater specific knowledge of spread of the disease process from the breast. Let us remember, however, that each case of breast carcinoma must be individualized and studied intently before any course of treatment is initiated. It is for the greatest benefit to the patient in longevity of life and diminution of suffering that our efforts should be directed in this still far from perfect approach to a terrible disease.

Dr. Jack V. King (Jackson)—First, I would like to congratulate Dr. Conerly on his interesting discussion. The treatment of carcinoma of the breast has been of interest to me for several years. It has been my feeling that we have no ideal treatment for carcinoma of the breast; however, in selected cases, radical mastectomy seems to offer the patient a more logical operation. It is rather discouraging to subject a patient to this rather lengthy procedure and then to note recurrence within a very short period postoperatively. In many cases, it is quite difficult to determine the operability or the inoperability of a patient based on clinical and x-ray findings. I am sure that all of you are familiar with the contraindications to radical mastectomy as quoted by Haagensen and Stout. In order to refresh your memory, I would like to quote these contraindications at the present time. 1) Extensive edema of the skin over the breast. 2) Satellite nodes in the skin over the breast. 3) Parasternal or intercostal tumor nodules. 4) Edema of the arm. 5) Supraclavicular metastases. 6) Inflammatory type carcinoma. 7) Distant metastases.

Two or more of the following are classified as contraindications: 1) Ulceration of the skin. 2) Edema of the skin to a limited extent, less than one-third of the skin over the breast involved. 3) Fixation of the tumor to the chest wall. 4) Axillary lymph nodes measuring more than 2.5 centimeters in diameter and proved to contain metastases. 5) Fixation of axillary nodes to the skin or the deep structures of the axilla proved to contain metastases.

Up until recent years, it was felt that carcinoma in pregnancy was a contraindication to radical mastectomy; however, this feeling has been changed. I am sure that simple mastectomy has a very useful place in the treatment of carcinoma of the breast. The difficulty arises in selecting the proper cases for simple mastectomy and the standard radical mastectomy.

I am glad that Dr. Conerly emphasized the importance of the internal mammary nodes. In my experience, biopsy of the internal mammary chain has been somewhat a more formidable procedure than Dr. Conerly has pointed out. If a positive biopsy of the internal mammary chain is obtained, it is quite a rewarding procedure from the prognostic standpoint. However, if a negative biopsy is obtained without removing the entire internal mammary chain of lymph nodes, then I feel that this procedure has no value. He has pointed out that approximately 50 per cent of those patients with axillary metastases had internal mammary node involvement. I have not routinely biopsied the internal mammary chain in all carcinomas of the breast, and personally, I do not feel it should be a generally accepted procedure until we have more statistical evidence of its value. I am willing to leave this job to the larger medical centers such as the Memorial Hospital in New York. In the series of cases treated at the Vanderbilt University Hospital, Dr. Conerly has pointed out that the majority of these patients were in the older age groups and most of the five-year survivals were also in the older age groups. Generally speaking, and particularly in the breast, carcinoma seems to be almost a different disease entirely in the young as compared with the older age groups. At least this is true in the rapidity of metastases and the over-all survival rate. I am sure that all of you have seen patients in the older age group with carcinoma of the breast who have gone on for many years with only palliation or no treatment at all, whereas it is a very rare occurrence to see a patient in the younger age group who has lived many years with only palliative or no treatment at all.

I am sure there is no argument as to the treatment of choice in carcinoma of the breast at the present time with negative internal mammary node biopsy and negative supraclavicular node biopsy, providing the patient meets the other criteria of operability and is not in the advanced age group or afflicted with some debilitating disease which would prohibit radical mastectomy. It is quite a discouraging though for us to be faced with the fact of such little progress in the treatment of carcinoma of the breast since Halsted's original radical mastectomy about 60 years ago. This is borne out by comparison of survival rates.

In closing, I would like to thank Dr. Conerly for the privilege of discussing his very interesting paper on the use of simple mastectomy in the treatment of carcinoma of the breast.

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Liver Biopsy as a Diagnostic Modality*

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and
E. L. POSEY, JR., M.D.
Jackson, Miss.

The liver, a large organ of uniform structure situated rather superficially in the abdomen, is an organ that is well suited for biopsy. Many pathologic processes affecting the liver are diffuse in nature; therefore, a small tissue sample will usually be adequate to represent the condition of the entire organ[1].

The increasing use of needle biopsy of the liver indicates its wide acceptance as a clinical and investigative tool. More than 20,000 biopsies have been reviewed, and it is now possible to conclude that judicious use, based on broad understanding of liver disease, is accompanied by a minimal morbidity and a negligible mortality; less discriminate use by high morbidity and disastrous mortality[2].

Needle biopsies of the liver have been performed as early as 1895, but received little attention for many years. Lucatello[3] in that year described diagnostic liver biopsies using needle and syringe aspirates. In 1939 Iversen and Roholm[4] aroused general interest in this field by using a transpleural approach to the liver through the ninth intercostal space in the right posterior axillary line. Welin[5] and Rossett[6] use this approach with a Vim-Silverman biopsy needle. Rossett believes that the procedure produces fewer reactions by performing the biopsy at the patient's bedside.

We have performed over 250 needle biopsies of the liver, this procedure being carried out either in a treatment room, or operating room of the hospital. As yet we have not performed any biopsies at the bedside. Our preoperative and operative technic, using the Vim-Silverman needle, is very much similar to that used by Rossett and Schiff. The night of admission, blood for prothrombin time, bleeding and clotting time, typing and cross matching for possible blood transfusion is obtained. Also, a visit is made to the patient for a complete discussion of the planned procedure and a "dry run" using a sharp fingernail as the needle point. The patient's ability to hold his breath after inhaling and exhaling deeply several times is tested, at which time the fingernail or a swab stick is pressed in the proposed point of entry, and the operator counts up to eight fairly slowly. We believe that some of the fear of the procedure is removed by this "get-together." Certainly it gives the operator a chance to know his patient, which is all important to obtaining a successful biopsy. The next day the patient receives 75 mgs. of demerol and 10 mgs. of vitamin K intramuscularly 30 minutes prior to biopsy. Schiff believes antibiotics should be used before and afterwards in suspected cholangitis. Food is usually withheld—even though a possibility of penetrating a distended stomach is not likely by utilizing the transthoracic route. With the patient supine on the edge of the table nearest the operator, the area of greatest dullness is selected from the anterior to the posterior axillary line in the eighth or ninth interspace. The exact point of entrance is marked by using deep pressure with the end of a swab stick. Then the skin of the lower right axilla is prepared with tincture of merthiolate and alcohol and the patient is draped. The skin, subcutaneous tissue, the intercostal muscle, the pleura, the diaphragm, Glisson's capsule and the hepatic substance are infiltrated with 2 per cent xylocaine with adrenalin. Care must be taken to penetrate beyond the intercostal space only while the patient is holding his breath at the end of full expiration[7]. A small incision is made with a Bard-Parker No. 11 blade. The Vim-Silverman needle, with the inner split needle at the very edge of the outer needle is then rapidly inserted to a distance of 5-6 centimeters, approximately two to three centimeters

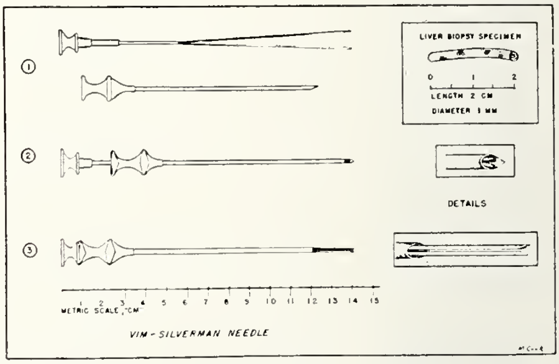

FIGURE 1 — (McGregor Instrument Company, Needham, Massachusetts)

Vim-Silverman needle and average size of the biopsy specimen. (1) Shows the forked obturator removed from the outer cannula; (2) the position of the obturator as the needle is introduced into the liver; and (3) the position of the obturator as it cuts a tissue specimen.

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*Presented before the Section on Medicine at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

into the liver substance, direction being downward and caudal. Then the forked obturator is pushed in to its full length. The outer needle is moved over it to enclose it completely. Both are then rotated 90 degrees to break off the liver substance in the forked obturator, and then rapidly withdrawn. Five to eight seconds should be the maximum time consumed for this procedure beginning from first insertion of the carrier needle. During this entire time the patient holds his breath in expiration. After the biopsy, the wound is dressed with a tight sponge-adhesive bandage. The patient remains supine for two hours, can move about in bed after that, but stays off his feet for twenty-four hours. The pulse and blood pressure are checked hourly until 9 P.M., then every two hours until 8 A.M.

RISKS OF REACTIONS AND EFFICIENCY OF LIVER BIOPSY

Very few of our cases have experienced severe pain after biopsy. Approximately 30 per cent have complained of right shoulder pain at the time of biopsy, probably being caused by blood on the undersurface of the diaphragm[illegible].

Epigastric discomfort was experienced by some of our patients while the needle was in the liver. We have had several patients develop what Kleckner, Stauffer, Bargen, and Dockerty call "pleural shock." This reaction was characterized by hypotension, perspiration, and the absence of tachycardia lasting for one to two hours. Lichtman[13], quoting various authors, states that the major cause of fatality is intra-abdominal bleeding. In most instances this has resulted from perforation of distended portal or hepatic veins[16]. Other complications include bile peritonitis, penetration of abdominal viscera, and hemorrhage into the pleural cavity or pleural effusion[7]. Zameheck and Klausenstock[16], in their review of more than 20,000 biopsies, found a minimal morbidity with less than a 0.1 per cent mortality rate. We have not had a fatal reaction in our series.

Our percentage of failures is 7 per cent, although 66 consecutive biopsies have been successful. We may "go back in" for a second trial when necessary, and on rare occasions, a third attempt will be made. The obtaining of a satisfactory specimen depends on many factors, including the experience and skill of the operator, the size, position and consistency of the liver, the cooperation of the patient, and the type of needle used[2]. Zamcheck and Sidman note that small non-palpable livers can be successfully biopsied. One third of our last 50 cases have had small non-palpable livers. Even with a perfect technic and sufficient experience, a 5 to 10 per cent rate of failures must be reckoned with[9].

CONTRAINDICATIONS FOR LIVER BIOPSY ARE AS FOLLOWS:

1. Uncooperative patient.
2. Low prothrombin time.
3. Right pleural effusion or similar infection.
4. Severe obstructive jaundice.
5. Prolonged bleeding from the skin when biopsy site is "nicked."
6. Ascites. Paracentesis should be performed before biopsy done.

THE INDICATIONS FOR LIVER BIOPSIES ARE:

1. Hepatomegaly of undetermined cause.
   a. a positive means of confirming diagnosis of hemochromatosis.
   b. exclusion of suspected disease.
2. Splenomegaly.
3. Differentiation between intra-cellular and obstructive jaundice.
4. To follow course of cirrhosis and hepatitis.
5. Evaluation of therapy.
6. Granulomatous and systemic diseases:
   - sarcoidosis
   - histoplasmosis
   - Hodgkins disease
   - brucellosis
   - miliary tuberculosis
   - amyloidosis
   - schistosomiasis
   - syphilis
   - blastomycosis
   - infectious mononucleosis
7. Neoplasm of liver, primary or metastatic.

Direct biopsy of a local metastatic nodule of the liver proves a valuable diagnostic measure. When malignant neoplasm of the liver is suspected, histologic examination of a fresh frozen section of the hepatic specimen affords immediate diagnostic significance[11]. Hoffman and Rosenthal emphasize its importance in establishing the diagnosis of metastatic carcinoma, therefore avoiding major surgery[12]. Positive biopsy findings in 82 out of 111 such cases was noted by Ward, Schiff, Young and Gall[17].

REPORT OF ILLUSTRATIVE CASES

CASE I

A 44-year-old white female housewife was admitted with a "golden jaundice, and fetor hepaticus." This was thought to be due to homologous serum hepatitis, even though she had had a radical mastectomy of the right breast ten months previously. Liver function studies suggested obstructive jaundice. Liver biopsy (Figure 2) revealed large areas of liver tissue completely replaced by highly undifferentiated carcinoma compatible with origin in breast.

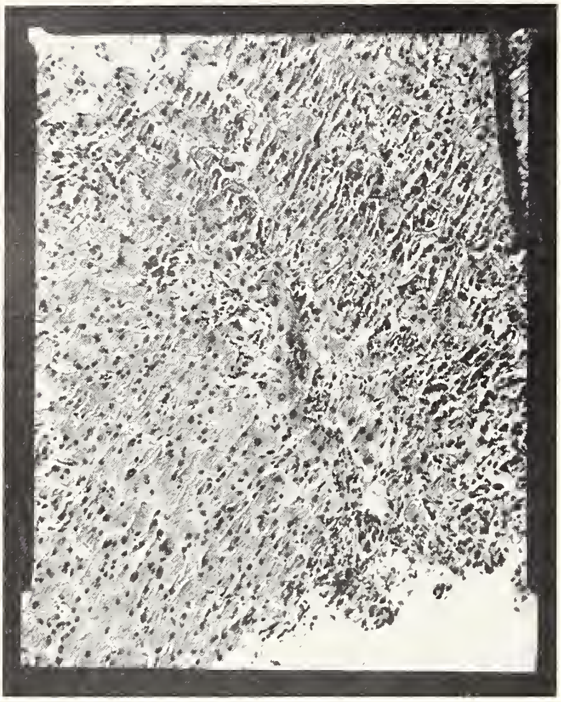

FIGURE 2—Metastatic carcinoma.

CASE II

A 37-year-old white female housewife was admitted on September 6, 1955, with a history of onset of weakness, vague dyspepsia, nausea, and sudden abdominal swelling in June 1955. This was followed by weight loss and jaundice. There was history of heavy consumption of alcohol and poor dietary intake. She deteriorated into hepatic coma in July and was unconscious for 5 days. The patient's recovery was gradual. Severe ascites continued, and anorexia was moderate. Repeated abdominal taps were done, and the patient experiencing considerable drainage for 7 weeks. After this she was peritoneoscoped. A small questionable "cirrhotic" liver was visualized. No varices were found on esophagrams. The diagnosis was considered as cirrhosis, etiology undetermined, and the patient was transferred to Jackson, Miss., ostensibly to die. Examination revealed a small asthenic white female with severe abdominal ascites. Ankle edema was 3-plus; no "spiders" or "liver palms" were noted. Blood pressure was 120/76. BSP test revealed 20 per cent retention. Cephalin flocculation was 1-plus in 24 hours, 2-plus in 48 hours; cholesterol 206 mgs. per cent; serum alkaline phosphatase 5.4 units; thymol turbidity 2.6 units; direct bilirubin 0.8 units; total proteins 5.56 grams with serum albumen 3.25 gms. and serum globulin 2.31 gms.; hematocrit 38 per cent.

Electrolytes and other chemistries were not remarkable. After a full cirrhosis regimen for 6 weeks, no change was noted. Because it was suspected that the patient did not have parenchymal liver disease, paracentesis was done in order to facilitate further examination of spleen, liver and pelvis. Following this procedure, both spleen and liver were palpable one finger below costal margins. The latter was firm and non-tender. The pelvis was negative. Liver biopsy (Figure 3) done on October 17, 1955, showed mild lymphocytic infiltration, but in general the liver tissue appeared normal. A spleno-portogram done on October 25, 1956, revealed occlusion of the portal vein with an extensive collateral circulation, confirming the impression of chronic portal vein thrombosis.

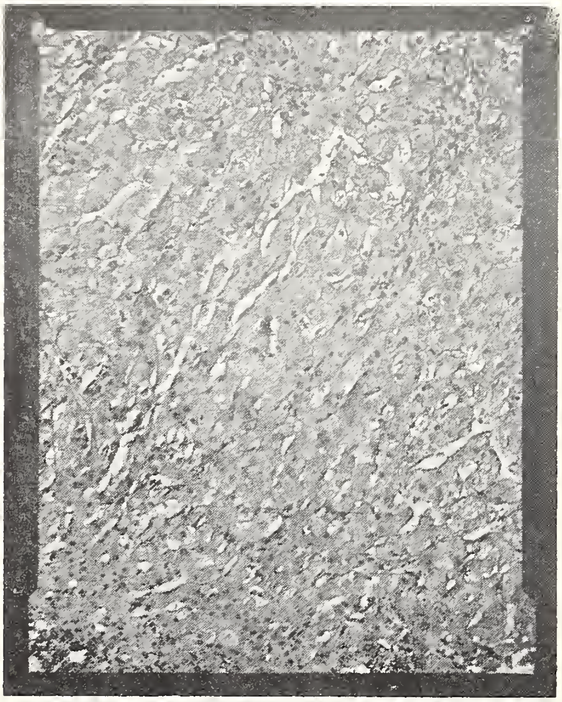

FIGURE 3—Normal liver.

CASE III

A 41-year-old white male plant manager, a heavy drinker for 15 years, experienced fever and discomfort in the right upper quadrant, and intermittent jaundice in November and December 1953.

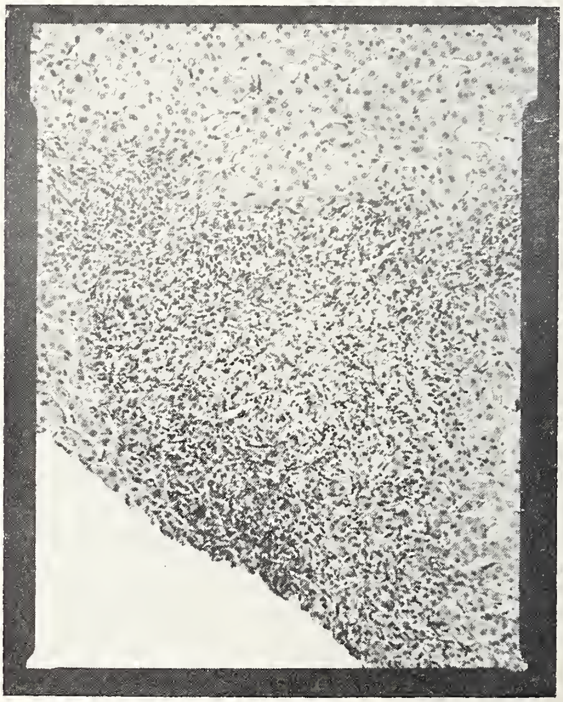

FIGURE 4—Hodgkins disease.

In February 1954 his fever averaged 101-105°. The serum alkaline phosphatase was elevated, and prothrombin level was down, otherwise liver tests were negative. Liver biopsy (Figure 4) on February 20, 1954, revealed "bizarre liver cells with multiple nuclei, intense inflammatory reaction with the predominant cells being lymphocytes." It was felt that the presence of a granulomatous hepatic lesion with the clinical picture was strongly suggestive of Hodgkins disease. This was later substantiated by biopsy of an axillary node.

CASE IV

A 41-year-old white female housewife was admitted because of acute bronchitis, with a past history of imbibing ethyl alcohol heavily. BSP revealed 24 per cent retention; cephalin flocculation was 3-plus after 48 hours; and thymol turbidity 6.5 units. Prothrombin time was 26 per cent of normal activity. Total proteins were 5.72 gms., with 2.9 grams of serum albumin, and 2.73 grams of serum globulin. Vitamin K was given parenterally with a prothrombin time of 100 per cent being obtained in several days. Liver biopsy (Figure 5) was then done, revealing irregular nodules separated by fibrous bands and considerable lymphocytic infiltration in the fibrous tissue zone. Minimal regeneration was present. The biopsy confirmed the opinion of this being more of a cirrhosis rather than chronic hepatitis.

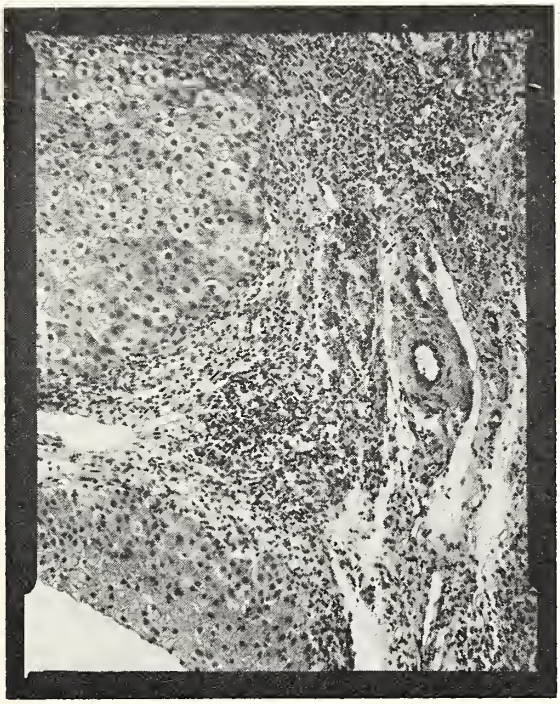

FIGURE 5—Cirrhosis.

CASE V

A 41-year-old white male dentist was seen in August 1, 1955, with history of fever, aching and jaundice in February 1955, lasting approximately six weeks. Since that time he had experienced severe fatiguability and dyspepsia. For three months prior to being seen in the clinic, he had run a persistently elevated BSP retention. However, he continued to work 6 to 8 hours a day. On admission examination was not remarkable other than the liver being palpable three finger breadths below the right costal margin, smooth, firm and tender. The spleen was not felt. A BSP test revealed 35 per cent dye retention. Cephalin flocculation was 3-plus after 48 hours. The total protein was 6.06 grams with serum albumen 3.62 grams and globulin 2.44 grams. The first biopsy of liver (Figure 6-A) done on August 26, 1955, showed large zones in which there was a marked inflammatory reaction, mainly lymphocytes with little evidence of regeneration. It was felt that a severe chronic hepatitis was present.

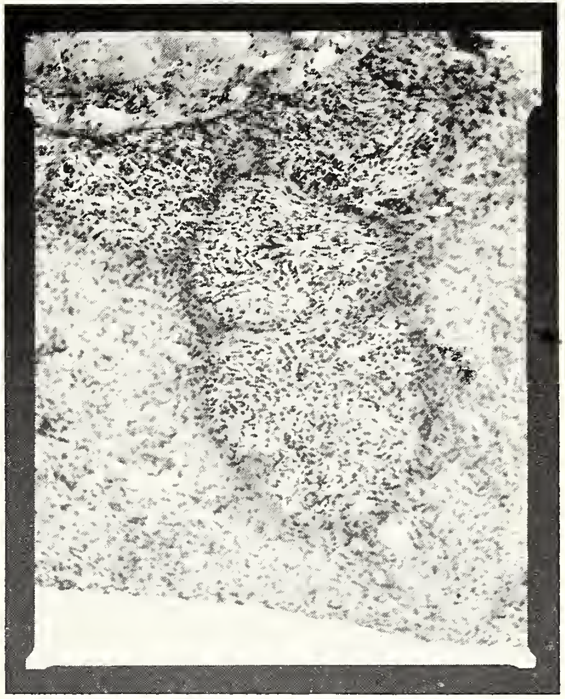

FIGURE 6-A—Severe chronic hepatitis.

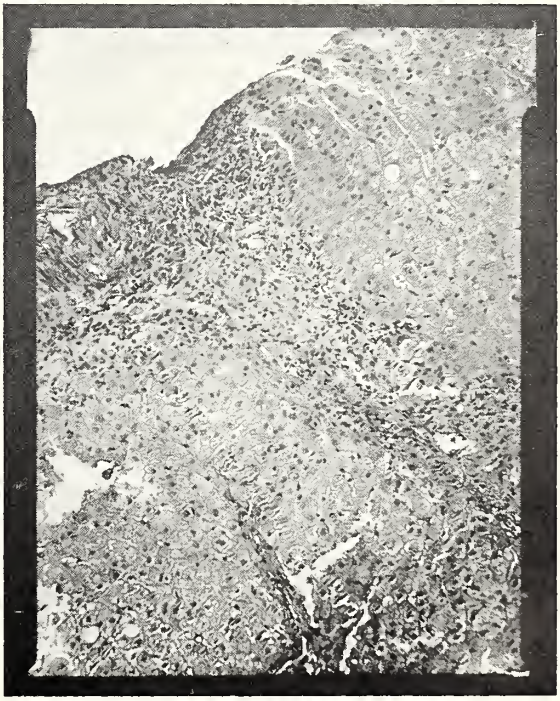

FIGURE 6-B—Less inflammatory reaction.

The second biopsy (Figure 6-B) done on November 23, 1955, showed less inflammatory change with bands of proliferating fibrous tissue. The third liver biopsy (Figure 6-C) done on March 22, 1956, demonstrated the presence of regeneration with less inflammation and "more normal" liver tissue. Liver function studies done at the time of this last biopsy were essentially normal. The patient had been on a rigid medical program this entire period.

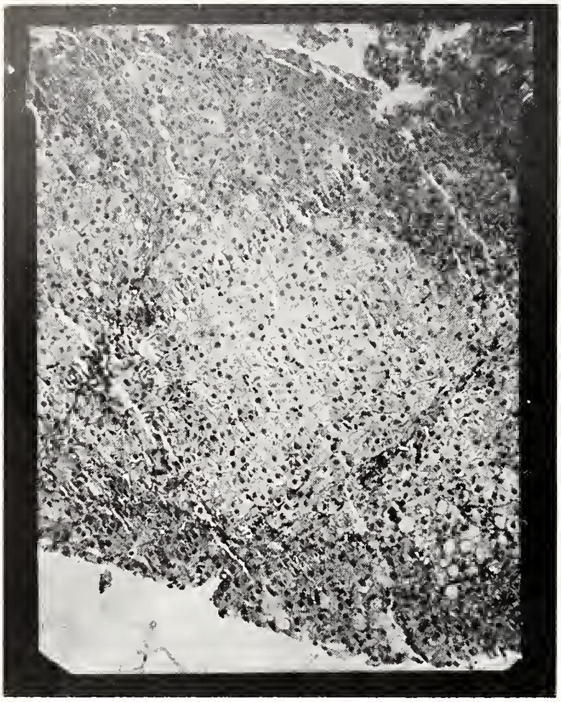

FIGURE 6-C—"Almost normal" tissue.

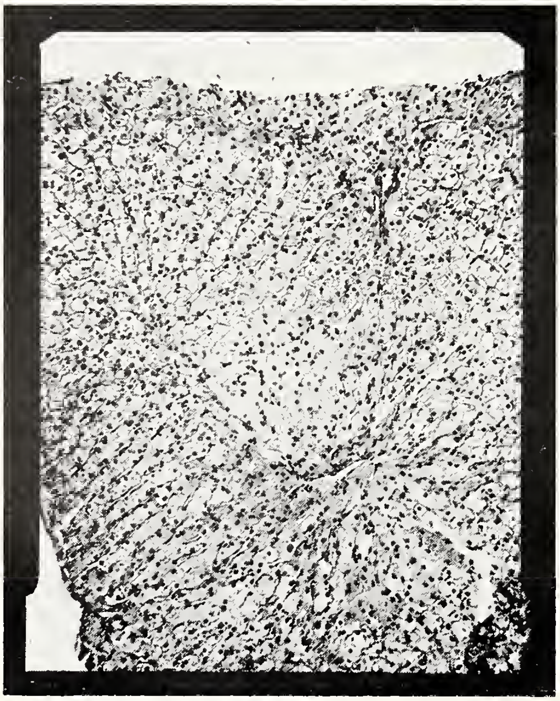

FIGURE 7—Normal tissue.

CASE VI

A 40-year-old white female housewife developed typical acute infectious hepatitis in January 1953, and was confined to bed for six weeks. The jaundice persisted only one week. For the next twenty months she made an invalid of herself, stating that she knew she had "cirrhosis of the liver," and should remain in bed even though all liver function studies were within normal limits six weeks following initial onset. Liver biopsy was performed on September 9, 1954, in order to determine more exactly the hepatic status. The slides (Figure 7) revealed vacuolated liver cells containing glycogen—essentially normal liver tissue. The patient thus finally convinced that she was well, got out of bed and resumed her place in society.

CASE VII

A 29-year-old colored male laborer first became ill in November 1954, with chills and fever, which responded to antibiotics. He continued to develop chills and fever. On February 5, 1955, a palpable spleen was noted. At this time the BSP retention was 13 per cent with the cephalin flocculation 3-plus in 48 hours, and the thymol turbidity 2.3 units. Total protein was 6.43 grams, with serum albumin 3.34 grams, and serum globulin 3.09 grams. Serum alkaline phosphatase was 36.7 units (Bodansky). Total cholesterol was 224 mgms. per cent, cholesterol esters 94 mgms. per cent, and prothrombin time 100 per cent. Sickle cell study and chest x-ray were negative. Liver biopsy (Figure 8-A) revealed increase in pari-portal connective tissue with marked lymphocytic infiltration and evidence of cirrhotic regeneration. The patient again had liver biopsy (Figure 8-B) in January 1956, because of an increase in size of the spleen. A serum alkaline phosphatase of 59 Bodansky units and a marked reversal of the A/G ratio were noted at this time. The total protein was 9.94 grams with serum albumen of 3.34 grams, and serum globulin 6.60 grams. This biopsy revealed a more diffuse reaction than the initial one; namely,

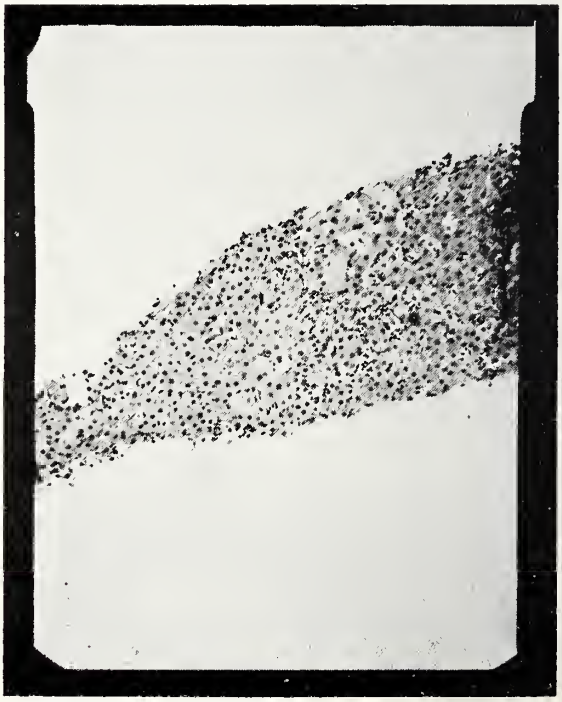

FIGURE 8-A—Sarcoidosis.

the presence of an occasional small discreet granuloma composed of fairly large mononuclear cells. With the markedly elevated globulin, and the splenomegaly, it was felt the biopsy findings were compatible with a diagnosis of Boeck's sarcoid. The subsequent course of the illness has confirmed this impression.

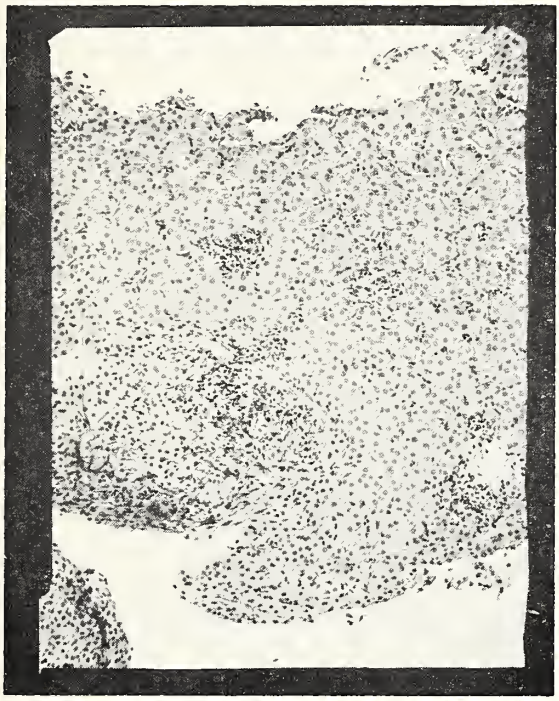

FIGURE 8-B—Sarcoidosis.

CASE VIII

A 62-year-old white female widow was admitted for treatment of tic douloreux of the left side of face. Jaundice was noted on admission to the hospital. Five weeks prior to admission she had been placed on thorazine, 50 mgs. orally, three times a day. The drug was discontinued after two weeks because of the appearance of clinical jaundice. Examination on admission revealed a deep jaundice with no evidence of liver palms or spider angiomata. The liver was one finger breadth palpable below the right costal margin, smooth and non-tender. The spleen was not palpable.

She was seen by us in consultation with our first impression that of thorazine jaundice. All liver function studies were compatible with that opinion, as all indicated an obstructive condition. The serum amylase was 63 units, the direct bilirubin was 15.5 mgs. per cent, the icterus index was 82 units, the serum alkaline phosphatase was 19.0 Bodansky units, the cephalin flocculation was negative, being 1-plus in 24 and 48 hours respectively. The thymol turbidity was 1.2 units. Prothrombin level was 69 per cent of normal. Total protein was 6.06 grams with 3.62 grams of serum albumen and serum globulin 2.44 grams. Fasting blood sugar and blood cholesterol were within normal limits. Upper gastrointestinal studies were not remarkable. Vitamin K was given parenterally with a 100 per cent prothrombin level being reached after three days. Liver biopsy (Figure 9) was done on January 11, 1956, revealing bile stasis without concentration around the portal triads. The small bile canaliculi contained brownish bile thrombi. Intracellular bile was also noted. During the next weeks an increase in the obstructive picture developed with deepening of the jaundice and continuing rise in the serum bilirubin and serum alkaline phosphatase. At this time a questionable mass was noted in the right upper quadrant. Exploration was carried out on January 30, 1956, with the first impression still being thorazine obstructive jaundice. This was confirmed, no disorder of the gallbladder or extrahepatic biliary system being found.

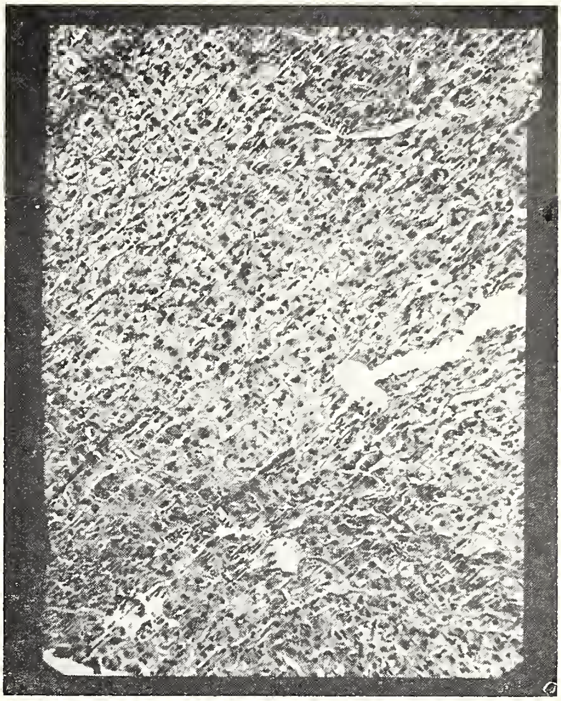

FIGURE 9—Thorazine obstructive jaundice.

The patient's convalescence has been slow, but definite, with liver function studies five months after the ingestion of thorazine showing a serum bilirubin, direct, of 4.5 mgs. per cent. The cephalin flocculation still is 1-plus after 48 hours.

CASE IX

A 57-year-old white female was admitted in January, 1956, with a chief complaint of dull sharp aching in the right upper quadrant, and severe fatigue of three months duration. The gallgladder had been removed in 1926. Physical examination revealed a middle-aged white woman with dark complexion, appearing chronically ill. The only other positive physical finding was a liver palpable four finger breadths below the right costal margin, firm and tender. The glucose tolerance curve was diabetic, the bromsulfalein retention was 40 per cent. Hemochromatosis was considered the most likely diagnosis. Liver biopsy (Figure 10) revealed increased cellularity in peri-portal spaces with lymphocytes being the chief cell type, although some neutrophils and eosinophils were present. Also, diffuse inflammatory reaction was noted with scatterings of cells throughout the lobule, and occasional small aggregates within the lobule. Bizarre nuclei and bi-nucleate cells were present, showing evidence of regeneration. No evidence of iron deposition was found. This pathological picture was interpreted as representing chronic viral hepatitis, thereby lessening considerably the pessimistic prognosis demanded by a diagnosis of hemochromatosis.

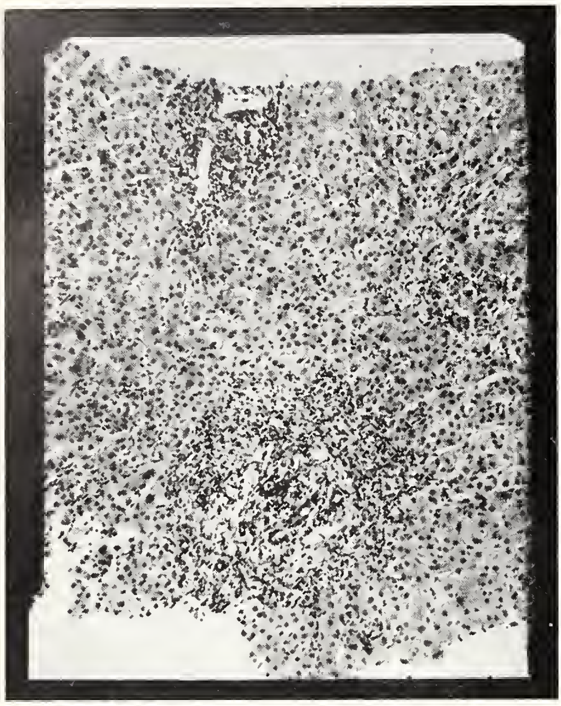

FIGURE 10—Chronic viral hepatitis.

DISCUSSION

Schiff[9] quotes Volwiler, Jones, and Mallory as remarking:

"The most careful clinical scrutiny of a patient with any chronic hepatitis may not permit one to predict with even moderate accuracy the histologic phase of the liver disease present. Neither do any laboratory tests, even when repeated serially, always correctly reflect the true histologic state of the liver at a given time, or the changes taking place during clinical observation; frequently the only means of determining this is microscopic examination of actual liver tissue."

In each instance above the final diagnosis was made or expedited by liver biopsy. The procedure should be seriously considered if the clinical picture and laboratory findings are not productive of a "clear cut" diagnosis.

We feel that emphasis should be given to choosing an experienced individual to perform the biopsy. This should insure a suitable specimen with a minimum amount of untoward reactions.

SUMMARY

Liver (needle) biopsy in carefully selected cases assists materially in increasing the accuracy of clinical diagnosis.

The authors gratefully acknowledge the assistance of Dr. Kenneth Heard, Pathologist, Mississippi Baptist Hospital, and the Medical Illustration Department, University of Mississippi School of Medicine.

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The human body, like the body politic, yearns for the peace that is contentment and the contentment that is health.

Glucose-Insulin Tolerance Test In Chronic Schizophrenic Patients

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THE PURPOSE of this communication is to report our evaluation of glucose-insulin tolerance tests in 50 chronic schizophrenic patients. These patients had been mentally ill for several years and diagnoses had been established and confirmed from histories, clinical observations, course of illness, and psychological testings. All the patients examined were in good physical condition; concomitant diseases which would interfere with the tests were ruled out prior to glucose-insulin tolerance tests. The participants were on a uniform diet of 2621 calories made up of 81.45 gm. protein, 130.4 gm. fats and 337.15 gm. carbohydrates which was maintained for a minimum of three days prior to testing.

For controls in this project, results of the glucose-insulin tolerance tests in five healthy, normal, non-psychotic individuals were used. Repeated tests were made on seven of the 50 schizophrenic patients at intervals of four weeks to determine if there was variance on repeated testing.

The Fraser, et al[1], glucose-insulin tolerance test used in this project is a safe procedure having been used in studies of individuals having diabetes and rheumatic syndromes[2], and patients with pituitary and adrenal disease[3]. The administration of glucose simultaneously with intravenous administration of insulin avoids a marked degree of hypoglycemia.

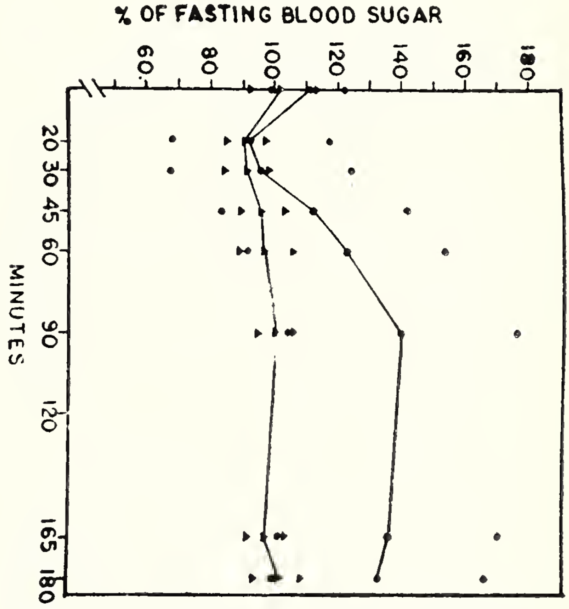
From the application of this carbohydrate test an evaluation was made as to the sensitivity of the subjects to insulin, and to determine if there was a deficient carbohydrate metabolism or a hypermetabolism. The test is so arranged that insulin balances the glucose, hence in a normal individual, the blood glucose should remain approximately flat. A high percentage of patients with diabetes-mellitus (hypoinsulinism) will also show a flat glucose-insulin tolerance curve or even show increased responsiveness to insulin. If a patient is insulin-resistant, however, the glucose-insulin tolerance test should approach the glucose tolerance curve limit, depending upon the degree of insulin resistance.

The nature of insulin insensitivity or refractiveness has not been definitely established but it is believed that the anterior pituitary gland plays a dominant role. A number of studies have been made with the glucose-insulin tolerance test on patients with pituitary and adrenal diseases in which the test is considered a good index of pituitary and adrenal functions. By application and interpretation of the test in chronic schizophrenic patients one may be able to theorize as to whether these patients have hyper-functioning adrenocortical glands or anterior pituitary glands.

Fraser, et al, Glucose-Insulin
Tolerance Test

1. Fasting blood sugar
2. 100 gms. glucose orally and 1/10th unit regular insulin intravenously per kg. of body weight
3. First blood sample 20 minutes after above administration
4. Second blood sample 30 minutes after above administration
5. Third blood sample 45 minutes after above administration
6. Fourth blood sample 60 minutes after above administration
7. Fifth blood sample 90 minutes after above administration
8. 120 minutes later 1-1/100th ml. adrenlin injected intramuscularly
9. Blood sample 45 minutes after adrenlin, and
10. one hour after adrenlin, another blood sample

CHART I



Note: 1. Line joining dots represents schizophrenic group.
2. Dots on either side of this line mark off the range in which 67% of the measurements fell (and—one standard deviation).
3. Line joining triangles represents the normal group.
4. Triangles on either side of this line mark off the range in which 67% of the measurements fell.

CHART II.

REPEAT GLUCOSE-INSULIN TOLERANCE TESTS ON 7 CHRONIC SCHIZOPHRENIC PATIENTS

	Name	Fasting	20 Min. after Glu. & Insulin	30 Min. after Glu. & Insulin	45 Min. after Glu. & Insulin	60 Min. after Glu. & Insulin	90 Min. after Glu. & Insulin	45 Min. after Adrenalin	60 Min. after Adrenalin
1st Test:	J.W.P.	108 mg.%	72 mg.%	78 mg.%	81 mg.%	94 mg.%	122 mg.%	140 mg.%	126 mg.%
2nd Test:	"	118 "	100 "	94 "	105 "	151 "	168 "	140 "	130 "
1st Test:	W. G.	90 "	60 "	55 "	90 "	95 "	100 "	110 "	100 "
2nd Test	"	98 "	64 "	58 "	75 "	90 "	90 "	115 "	110 "
1st Test:	H. M.	108 "	126 "	138 "	140 "	148 "	177 "	190 "	190 "
2nd Test:	"	110 "	130 "	138 "	140 "	148 "	160 "	173 "	173 "
1st Test:	C. R.	126 "	72 "	55 "	90 "	100 "	126 "	164 "	180 "
2nd Test:	"	118 "	78 "	88 "	98 "	118 "	130 "	164 "	164 "
1st Test:	W. M.	110 "	94 "	90 "	105 "	105 "	155 "	144 "	130 "
2nd Test:	"	100 "	90 "	90 "	115 "	140 "	180 "	168 "	144 "
1st Test:	J. B.	120 "	65 "	70 "	80 "	95 "	80 "	105 "	110 "
2nd Test:	"	110 "	78 "	100 "	110 "	100 "	118 "	108 "	110 "
1st Test:	A.E.S.	90 "	60 "	80 "	95 "	110 "	120 "	110 "	130 "
2nd Test:	"	108 "	90 "	98 "	126 "	130 "	130 "	164 "	164 "

COMMENTS

There are many hypotheses put forth by various authors to explain the presence of insulin resistance or insensitivity in schizophrenic patients. However, the majority of authors seem to agree on one fundamental idea, that is, that these patients have an endocrine dysfunction, either a hypo or hyper function of the adenocortex or anterior pituitary gland. Meduna and Vaichulis[4] believe that the diabetic's sugar tolerance curve in schizophrenic patients is due to a delayed or diminished action of insulin on the basis of hyperactivity of an anti-insulin factor, a production of the anterior lobe of the pituitary gland. Freeman and Elimadjian[5] investigated the relationship between dysfunction in sugar metabolism and reduced adrenal activity arriving at the hypothesis that schizophrenic patients suffer from an adrenal cortical dysfunction and that in chronic cases there may be an irreversible pathological change.

In this preliminary project primary interest was to determine if chronic schizophrenic patients are insulin-resistant and the percentage of those showing evidence of this anti-insulin factor. From chart I it is evident that the majorty of chronic schizophrenic patients showed refraction to insulin. Some of the patients were within the normal range or below it but the majority were above the usual limits. A few, at the end of three hours, showed a very high degree of insulin insensitivity. Seven patients on whom a test was repeated at a four-week interval showed a close parallel to the first test. The question that arises here is whether the anti-insulin factor is constantly present in chronic schizophrenic patients?

SUMMARY

The administration of small quantities of adrenalin had little effect on the glucose-insulin curve in schizophrenic patients and added no further information. The glucose-insulin tolerance test is one laboratory procedure that reveals a definit variance of schizophrenic and non-schizophrenics. The cause is unknown, but it seems worthy of more extensive study with animal experimentation. The Fraser et al. glucose-insulin tolerance test was done on 50 chronic schizophrenic patients the majority of whom showed evidence of insulin insensitivity.

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Great thoughts come from the heart—Vauvenargues

Greatness and goodness are not means, but ends—Coleridge

Let us make haste to live, since every day to a wise man is a new life—Seneca

Life is really simple, but men insist on making it complicated—Confucius

INTERPRETING MEDICAL LITERATURE

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CARDIOLOGY

QUANTITATIVE ASPECTS OF TREATMENT WITH QUINIDINE. Maurice Sokolow, M. D. *Annals of Internal Medicine*, Vol. 45, No, 4, P. 582, Oct. 1956

Because of the great variability in the use and dosage of quinidine in this country, and the difference of opinion as to the value of the drug and concept of the risk entertained through the use of the drug, this present communication states that it hopes to reconcile these differences and summarize the work where the use of quinidine has been placed on cencentration in blood rather than on dose.

Quinidine levels can be determined in the blood quite readily by fluorometric techniques, and using such measurements the author found that the quinidine concentration in the blood varied strikingly in different individuals. This was true to both large and small doses, although in general the larger the dose the higher concentration attained. A five-fold difference in serum concentration resulting from doses of 3 grams per day have been observed, and this variability in serum concentration undoubtedly explains some of the vagaries of clinical response when the drug has been used empirically. Experience indicates, this author states, that this concentration is related both to conversion of arrhythmia and to toxicity. In approximately 700 serum determinations he found that only three cases of myocardial toxicity had occurred at serum levels less than 6 micrograms per cc. and none at less than 3 micrograms per cc. The incidence of myocardial toxicity increased progressively as the serum concentration exceeded 6 micrograms per cc.; it rose to 12 per cent at levels between 6 and 8 micrograms, 30 per cent between 8 and 10 micrograms, 45 per cent between 12 and 13 micrograms, and 65 per cent at levels over 14 micrograms.

In order to correlate these blood levels with the actual amount of drug given orally, conversion was attempted by two techniques. 1) The rapid method, .4 gm. quinidine every two hours for five doses, repeated the next day, it was increased to .6 gram every two hours for five doses, if warranted by the patient's response and the absence of toxicity. 2) The slow method, .4 grams, four times a day for 72 hours, increased to .6 gram four times a day for 72 hours, then to .8 gram, etc, depending upon the response and lack of toxicity. It was found that 80 per cent of all conversions without clinical toxicity occurred with doses of 3 grams of quinidine or less, or at serum concentration of 8 micrograms per cc. or less. Hence the toxicity from quinidine increases progressively as this dose or this level is exceeded, the relatively small yield of 20 per cent additional conversions with larger doses should be kept in mind and the relative chances of conversion weighed carefully against the relative risks of toxicity.

COMMENT: The most practical point to be recognized from this article is the fact that 3 grams of quinidine daily will give a blood level of approximately 8 micrograms per cc. of quinidine, and that 80 per cent of conversions will take place at this oral dose level and serum concentration level. If conversion is not successful at this dose, larger doses, of course, will be used but the increased risk and lower yield should be kept in mind by the physician.

PEDIATRICS

GASTROINTESTINAL ALLERGY TO COW'S MILK IN NEONATAL PERIOD. R. B. Tudor. Journal-Lancet 76: 245-246 (Sept.) 1956 (Minneapolis.)

Manifestations of gastrointestinal allergy in children are most commonly due to cow's milk. The first allergic symptoms usually occur from birth to four months of age. At this time, the intestine may be sensitive when the skin is not. Skin testing is usually inconclusive. The most common symptoms of gastrointestinal allergy due to cow's milk are colic, vomiting, diarrhea, nasal stuffiness, cough, wheezing, and shock. Unless the child is sensitive to the lactalbumin of cow's milk, goat's milk is not a successful substitute because the casein in cow's milk and goat's milk is identical. Soy bean milk, a weak sensitizing protein, is usually the best milk substitute. The author presents histories of seven infants with symptoms of gastrointestinal allergy due to cow's milk. Most of them improved when soy bean milk was substituted for cow's milk. One required a meat base formula, and another had no further difficulty when goat's milk was substituted for cow's milk.

COMMENT: It has been our privilege to see many cases of allergy in all its forms in children from birth to older age limits in Pediatrics. The substitution of goat's milk in the feeding of these children is quite often sufficient in clearing up the allergc reaction seen in these cases; however, in a few instances it is necessary to substitute soy bean milk, which we often do. In a good many cases where soy bean milk was not sufficient, goat's milk responded in a very nice way.

SURGERY

ACUTE GASTRO-INTESTINAL OBSTRUCTION IN CHILDREN

CURTIS P. ARTZ, M.D.

THE MOST COMMON type of surgical emergency in infants and children is acute obstruction of the gastro-intestinal tract. The causes of obstruction vary. They are for the most part different from the causes of obstruction in adults and, therefore, require different technics in management. Since the general surgeon does not encounter some of these entities frequently, it seems wise that the current concepts be reviewed.

A brief outline of the common types of obstruction is presented in Table 1. Obstruction associated with pyloric stenosis, appendicitis and intussusception has not been included.

ESOPHAGEAL ATRESIA

Several types of congenital abnormalities of the esophagus may be encountered. These include esophageal atresia, stenosis and tracheo-esophageal fistula. The most common entity occurring in over 90 per cent of the cases is an atresia in which the upper portion of the esophagus ends in a blind pouch and the lower portion communicates with the trachea giving a tracheo-esophageal fistula.

Esophageal atresia can be identified in the early hours of life. Excessive salivation is present. All secretions roll out of the mouth because the swallowing mechanism is blocked. Attempts at feeding are accompanied by coughing and occasionally temporary cyanosis. A diagnosis can usually be made by attempting to pass a urethral catheter through the mouth into the stomach and by roentgenographic studies using lipiodol.

Widespread pneumonia may follow the spillover of food and saliva into the tracheo-bronchial tree. There may be a reflux of gastric juice from the stomach up the lower esophageal segment and through a fistula into the trachea.

Babies with esophageal atresia present an urgent surgical problem but do not require immediate operation. It seems best to defer the operative procedure until the patient can be properly prepared. The operative treatment of choice is a primary esophageal anastomosis carried out through a right transpleural approach. A temporary gastrostomy provides a good method for proper feeding and allows time for the esophageal anastomosis to heal.

INTESTINAL MALROTATION

Obstruction from malrotation of the intestine and colon usually occurs in the region of the duodenum. It happens mostly in the first year of life and predominantly before the child is one month of age.

With incomplete rotation of the cecum this organ may lie just below the distal half of the stomach and bands of reflected peritoneum run from it to the posterior abdominal wall. These bands obstruct the descending portion of the duodenum. Sometimes there is a volvulus of the midgut with infarction of the intestine. In such instances the entire small intestine must be untwisted by unwinding the mass in a counterclockwise direction. Usually the normal color returns to the intestine. Another volvulus will occur unless the cecum is freed from the attachment in the right upper quadrant.

Irrespective of whether there is only a duodenal obstruction or there is an entire volvulus of the midgut, the attachments of the misplaced cecum must be cut and the cecum must be transferred along with the ascending colon to the left side of the abdomen.

ANNULAR PANCREAS

A rare form of obstruction is an annular pancreas which is a ring of pancreatic tissue surrounding and constricting the second portion of the duodenum. The obstruction may be complete or incomplete and usually is manifested in the early days of life. However, in some incomplete obstructions it may not be diagnosed until the infant is several months of age. Various operative procedures have been tried, but any direct attack on the pancreatic tissues carries a high mortality. The best operative procedure is a bypassing operation such as duodeno-jejunostomy.

INTESTINAL DUPLICATION

Duplications of the gastro-intestinal tract are spherical or elongated hollow structures which possess a coat of smooth muscle, are lined by mucous membrane and are intimately attached to some portion of the tract. They may occur along any portion of the alimentary tube but are most common in the esophagus or ileum. They vary greatly in size and shape. About 65 per cent of reduplications manifest themselves in the first year of life. There may be varying symptoms but a common manifestation is that of obstruction in which the cyst or tube-like structure becomes so dilated that it encroaches upon the adjacent intestine. Obstruction usually occurs when the lesion is associated with the duodenum or more distally in the small intestine.

In intra-abdominal duplications the treatment of choice is usually resection of the duplication and its adjacent intestinal tract followed by primary anastomosis.

INTESTINAL ATRESIA

Congenital atresia of the intestine and colon is an uncommon malformation in which there is complete obstruction of the alimentary tube. Intestinal atresia may be found in two forms: an internal diaphragm or the intestine ends in a blind sac. In intestinal or colonic atresia symptoms begin the first day of life. There is vomiting which becomes progressively worse. Usually the stools are very small in amount, greyish-green in color and do not contain cornified epithelial cells in the first 48 hours of life. Films of the abdomen without the use of contrast media usually give diagnostic information. The use of barium is accompanied by certain risks because the material may become inspissated.

As soon as the diagnosis of obstruction is made operation should be carried out. Since the baby is usually a very poor risk, the atresia need not be resected but a circumventing procedure should be performed. A side-to-side anastomosis bypassing the atretic area offers the best chance for survival. In the distal half of the ileum atresias may be treated by the exteriorization method. The two loops are sewed together and brought out through the abdominal wall. After four or five days, a crushing clamp can be applied to the septum between the two limbs and the stoma closed in ten days or two weeks.

INTESTINAL STENOSIS

Congenital stenosis of the intestinal tract arises in the same manner as does an atresia. Usually stenoses appear in the first week of life but are unrecognized during the first few days after birth. Stenoses are more common in the duodenum. The opening in the intestinal tract may be only 2 or 3 mm. in diameter. A film of the abdomen without the use of barium may give all the information that is required. However, if there is a question as to the location and presence of obstruction, a thin barium mixture may be given.

About half the patients, especially those having rather complete obstructions, will be seen in the first week or two of life with persistent vomiting. A small group of infants with some type of incomplete obstruction may not be seen until the third or fourth week of life when they are brought to the medical service for regulation of feeding.

The preferred operative procedure is a bypass operation with side-to-side anastomosis. If the obstruction happens to be above the ampulla of Vater, a gastro-jejunostomy is necessary. For stenosis of the duodenum a duodeno-jejunostomy is preferred. If the obstruction is lower in the ileum, the narrowed segment may be excised and the ends joined by end-to-end anastomosis. However, if the child's condition is poor, it seems better to bypass the stenotic area by a side-to-side isoperistaltic anastomosis.

MECONIUM ILEUS

Obstruction from impacted meconium in the ileum is one of the difficult conditions to treat in early life. The thick inspissated meconium blocks the lower portion of the ileum. The fundamental disturbance is believed to be altered pancreatic physiology. Various operative procedures such as resection of the plugged ileum, enterostomy and attempts at dissolution of the putty-like material with enzymes followed by ileocolostomy, have all given uniformly poor results. The procedure of choice is an exteriorization of the obstructed area with a Mikulicz type resection and the formation of a double ileostomy. The ileostomy may be closed in about three weeks.

OMENTAL AND MESENTERIC CYSTS

Cysts of the omentum and mesentery originate from the obstruction of some lymphatic channel or by the growth of congenitally misplaced lymphatic tissue. They may arise in the omentum or any portion of the mesentery or mesocolon. They are usually filled with serous or chylous fluid and give rise to a variety of symptoms including obstruction. The obstruction may be partial or complete and is caused by pressure of the cyst against the intestinal tract. Surgical treatment consists in removal of the cyst. If it can be dissected out from the mesentery, this method is preferred. On the other hand, it is sometimes necessary to resect the cyst along with that portion of the intestine to which it adheres and carry out a primary anastomosis.

TABLE 1.

OUTLINE OF CONDITIONS CAUSING ACUTE OBSTRUCTION OF THE GASTRO-INTESTINAL TRACT IN CHILDREN.

Pathologic Entity	Organ Affected	Type of Obstruction	Common Age Period	Mortality	Corrective Operative Procedure
Esophageal Atresia	Esophagus	Usually Complete	First days of life	Over 50%	Primary esophageal anastomosis
Intestinal Malrotation	Duodenum	Complete	First month or year of life	About 25%	Cecum released and moved to left abdomen
Annular Pancreas	Duodenum	Complete or incomplete	First days of life	About 50%	Duodeno-jejunostomy
Intestinal Duplication	Mostly duodenum and ileum	Complete or incomplete	First year	About 10%	Resection
Intestinal Atresia	Duodenum, ileum, jejunum, colon	Complete	First days of life	Over 50%	Bypass with side-to-side anastomosis or exteriorization
Intestinal Stenosis	Duodenum, ileum, jejunum, ileo-cecal valve	Usually complete	Mostly during first week of life	About 40%	Bypass operation or excision of stenotic area
Meconium Ileus	Lower ileum	Complete	First days of life	Over 40%	Exteriorization and double ileostomy
Cysts	Jepunum and ileum	Complete or incomplete	First six years	Low	Removal of cyst
Intra-abdominal hernia	Ileum	Complete	Any age	Low	Reduction
Strangulated inguinal hernia	Ileum	Complete	Any age	———	Reduction or resection
Imperforate Anus	Anus	Complete	First days of life	About 10%	Varies with type of abnormality

INTRA-ABDOMINAL HERNIA

Intra-abdominal hernias are rare but occasionally cause intestinal obstruction in children. It is almost impossible to establish a correct diagnosis before operation. The obstruction is usually of some portion of the ileum and may occur in any area where a pouch of congenital origin has developed from an incomplete fixation of the mesentery and mesocolon. Usually reduction of the hernia can be accomplished and resection is rarely necessary.

STRANGULATED INGUINAL HERNIA

Incarcerated hernias are not uncommon in children but usually can be reduced by conservative measures. Strangulation of the intestine is relatively rare. However, when it does occur, intestinal obstruction follows and requires surgical reduction and occasionally resection.

IMPERFORATE ANUS

Congenital anomalies of the anus and rectum are not infrequent occurrences in newly born infants. The two types of imperforate anus, one in which the obstruction is membranous and the other in which the anus is imperforate because the rectal pouch ends blindly some distance above the anus, present different problems in management. The latter type is the most common. Other types of abnormalities of the rectum and anus are rather infrequent.

Usually the patient with an imperforate membrane is seen within the first few days of life. Because the obstruction is only membranous, a dark discoloration is imparted to the diaphragm by the meconium which lies above it. It is usually treated by a cruciate incision of the membrane followed by dilatation.

If the anus is imperforate and a rectal pouch ends blindly above it, there will be an acute obstruction. In some instances there may be a fistula connecting the rectum with the genito-urinary system or with the perineum. The position of the blind rectal pouch can be determined by holding the infant with his head down and making a roentgenogram of the abdomen and pelvis. Any gas in the color will rise and outline the distal portion of the rectal pouch. Lateral films are better than anterior-posterior films for estimating the position of the pouch.

The method of treatment depends upon the position of the pouch. If the blind rectum is within a centimeter and a half of the perineal skin, usually it can be repaired by a perineal operation alone. If the rectum is at a higher level, it is generally impossible in a newborn baby to reach it satisfactorily from below and one of two choices must be made. Either a colostomy must be established and the rectum repaired when the child is one or two years of age or the malformation must be repaired immediately by an abdomino-perineal approach. The type of approach should depend upon the general condition of the infant at the time the diagnosis is made.

News and Comment

AMERICAN INSTITUTE OF DENTAL MEDICINE

The Institute continues to offer case histories from the broad field of dental medicine for the year 1956-57. These will include original 35 mm. kodachrome slides of the oral condition, pertinent laboratory findings, medical background, roentgenograms, photomicrographs, diagnostic criteria and whatever else may be indicated in each individual case, with a "general discussion" of the disease. A loose leaf binder and matching kodachrome slide box will be furnished to each participant. The fiscal year of the Institute began October 1.

Anyone subscribing to this Case History Service is entitled to full membership in The American Institute of Dental Medicine.

For further information address all communications to the Secretary, Mrs. C. Novembri, 2240 Channing Way, Berkeley 4, California.

Dr. Tom D. Spies, Birmingham, Alabama, and Chicago, Illinois, was unanimously elected president-elect of the Interstate Postgraduate Medical Association of North America by its board of trustees at the annual meeting of the Association in Cleveland, Ohio, in October. The Association is primarily a postgraduate teaching organization.

Dr. Spies is scientific director of the Nutrition Clinic, Hillman Hospital, Birmingham, and professor and head of the Department of Nutrition and Metabolism, Northwestern University Medical School, Chicago.

The Amite-Wilkinson county medical society held its Christmas meeting on Tuesday, December 4, at 7:30 P.M. at the Field Memorial Hospital in Centreville, Mississippi. The program was presented by Dr. D. J. Van Landingham (chairman of Mississippi Heart Association) and by Dr. Arthur Guyton (head of the Department of Physiology at the University of Mississippi Medical School). Both speakers came from Jackson, Mississippi, accompanied by their wives.

Dr. Van Landingham gave an interesting and stimulative talk on the activities of the Mississippi Heart Association.

Dr. Guyton presented some interesting cardiopulmonary physiological conditions and their relationship to certain clinical problems.

Other guests were Dr. and Mrs. Paul Jackson and Dr. Clovius Toler of Jackson, La. The members of the society were accompanied by their wives. An excellent Christmas dinner was served by Miss Bowles and her nursing staff.

Dr. James D. Hardy, professor of surgery at the University of Mississippi Medical Center, was inaugural speaker December 12 at the establishment of the Horace Smithy Memorial Lectureship at Roper Hospital, Medical College of South Carolina, Charleston. His paper was entitled "Physiologic Treatment of Circulatory Collapse: Preoperative, Operative and Postoperative."

BEST WISHES, DR. DICKS

We were glad to have Christmas greetings from Dr. J. W. D. Dicks, Apt. 22, 87 Columbia Heights, Brooklyn, N. Y. It is always good to hear from him. It is so fine of him to remember his doctor friends in Mississippi. He is a choice spirit in the medical profession—courtly and courteous and possessing medical integrity and professional dignity. Blessings upon him. It is fine to hear from this good friend.

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§

HAPPY NEW YEAR!

A new year is here. We are grateful for the many blessings of the last year. We want to thank every one, every friend, every reader, and every advertiser for their support of the journal.

LOOKING AHEAD

Medicine has been on the march for the last year and we are sure it will keep up. Mississippi has made fine progress. Our four-year medical school is on the way upward. In medical circles throughout the country our school gets a good name. Our State Health Department is on the way with a new home on the medical center, and we are sure it will be named for our able, beloved, and widely known Felix J. Underwood. Our tubercular sanatorium is keeping to the fore, has rendered a great service under the able leadership of Dr. Henry Boswell and continues to be a great institution for treatment and for teaching prevention. Our hospital system is on the up and up. Mississippi is well on the way with the very best hospital system to be found in any state in the union. Our hospital at Whitfield to treat the mentally sick has taken its place well up the ladder of similar institutions. We are proud of it.

We need more nurses, especially the regular three-year R.N. It is a challenge that comes to us for the new year, and a very important one. The nursing schools should be distributed over the state to a certain extent so as to secure the best recruits and so that our nurses will more likely remain in the smaller town where they are so badly needed.

Polio is still a challenge and we must make it our business to fight it from every angle this year. The health department shares in this victory, as does the medical profession. Every doctor must urge upon his clientele the importance of being vaccinated. It seems that age should not be too much in question, even up to fifty. A steady fight must also be kept up against tuberculosis.

We must give more attention to heart disease. The early and efficient treatment of colds, influenza, tonsillitis, and any other infectious or contagious disease will reduce heart disease, we are now convinced.

Rehabilitation of the handicapped awaits more earnest effort on the part of the profession, the medical school, and the people at large. Our biggest challenge and this is to one and all is to prevent, to treat, and to return to work these injured by accident, as well as to save the lives of a hundred thousand per year of our men and women and children. We can not carry the loads of a hundred thousand killed, nine million injured and nine billion dollars' expense. Prevention should be our motto. Many things enter into this prevention, but the biggest one trouble is the consumption of alcohol as a beverage. As long as men and women love whisky better than human life the problem will not be solved. Many causes beyond the consumption of whisky can be removed. Cutting speed for safety might help. Padding the car as we did for the maniac in our hospitals in the past might help some also.

The cost of sickness continues to rise. Many angles are to be considered in this problem. The medical profession, the druggist, the research men, and the hospital must get together and make a serious and interested study of the economy of medicine.

Medical dues continue to mount and it might be time to call a halt. There is always a difference between what people want and what they actually need, between the non-essentials and essentials. A plain hair-cut might answer oftentimes without a massage. As long as dependents increase, especially in the aged, we need to practice economy and doctors should be willing to take the lead. No profession on earth can be of more benefit in our human economy than the medical profession if we have the vision of service and the courage to lead. Material and technological advancement has moved at a rapid rate. The spiritual side of man needs to be developed and the medical profession has its responsibility.

DR. GREEN DAY

In Tippah County just a few weeks ago the people of the Walnut and Chalybeate communities celebrated Dr. E. J. Green Day. It was quite a fine affair. Dr. Green has been in general practice for 47 years. He has been faithful all the while. He has been loyal to the principles of the profession. Where duty pointed he has gone with fee or without, by horseback, by buggy, and by car. He is still on the job and doing fine. We congratulate him and we are looking forward to the time when we shall deliver him the fifty-year certificate.

MID-SOUTH POSTGRADUATE ASSEMBLY

Take due notice of the Mid-South program February 12-15. You will be pleased with this fine program. It is fine to get this good review of medicine and surgery in such a short course. The fellowship at the Peabody and in Memphis is not to be surpassed anywhere. Let us meet at the Mid-South.

My friend is that one whom I can associate with my choicest thought—Thoreau

DEATHS

DR. SAMUEL LIDDELL

Dr. Samuel Houston Liddell, 67, who practiced medicine in New Albany and Myrtle since 1910, was buried in New Albany cemetery December 7 following services at the Myrtle Methodist Church. Smallwood Funeral Home was in charge of arrangements.

He leaves his wife, Mrs. Sallie Carter Liddell; two sons, William Liddell of Los Angeles and Sam Liddell, stationed in Hawaii with the Navy; two sisters, Mrs. Carie Mae Stevens and Mrs. Clara Liddell of Memphis, and six grandchildren.

DR. JOHN RAYBURN

Dr. John Albert Rayburn, physician and civic leader, died at the Pontotoc Community Hospital Saturday morning, Nov. 3, following a long illness. He was 74.

Services were held at the residence at 2 p.m. Sunday afternoon, Nov. 4, with the Rev. G. R. Meaders officiating. Burial followed in the Pontotoc Cemetery with Browning Funeral Home in charge.

Born at Atoka, Tenn., Dr. Rayburn was educated at Etta, Miss., and served there as a rural mail carrier before enrolling in the old Memphis Medical College where he graduated in 1915.

He married the former Miss Victoria Coleman of Etta in 1904.

Dr. Rayburn began his medical practice at Cornersville, Miss., and later served at Oakville, Tenn. He came to Pontotoc County in 1917 and practiced at Hurricane and Ecru until 1928 when he was appointed as superintendent of the Natchez Charity Hospital at Natchez, Miss. He returned to Pontotoc in 1932 and practiced until retirement in 1953. In 1935, with a son, Dr. T. H. Rayburn, he established the Pontotoc Clinic.

Dr. Rayburn took an active interest in political affairs. He was among the first to help to establish Pontotoc's new community hospital which was opened in 1953.

Dr. Rayburn was a Methodist, a former member of the Woodmen of the World, and a Mason.

In addition to his wife, he leaves four sons, Dr. T. H. Rayburn, K. G. Rayburn, Dr. Charles Rayburn and John Rayburn, Jr., all of Pontotoc; a daughter, Mrs. Hugh McElveen of Jackson, Miss.; two brothers, H. B. Rayburn of Myrtle and C. G. Rayburn of New Albany, and a sister, Mrs. Birdie Williams of Jackson, Miss.

DR. R. W. HALL, JR.

Dr. Roland W. Hall, Jr., 47, who maintained offices in Jackson and Vicksburg, died of a heart attack on a downtown street in Vicksburg, Dec. 10, 1956.

Dr. Hall, a dermatologist, opened an office in Vicksburg in October.

Survivors include his mother, Mrs. Roland W. Hall, Sr., of Clinton; a son, Roland Hall, III; and two sisters who live in Clinton.

He was a graduate of the University of Arkansas Medical School, Little Rock, Ark.

DR. C. R. McKEE

Funeral services were held December 13 for Dr. Carlos Reese McKee, 74, from the Hazlehurst Methodist Church. Burial was in the Peets family cemetery, 17 miles southwest of Hazlehurst.

Dr. McKee died in the Hardy Wilson Memorial Hospital where he was under treatment following a heart attack.

He had practiced medicine in Hazlehurst since 1925, formerly having been located in Rankin County and in Wesson. During World War I he served overseas as evacuation officer. He was a graduate of Memphis Hospital Medical College, Memphis, Tenn.

Survivors include his wife, Mrs. Georgia Young McKee; one son, William P. McKee, Ft. Worth, Texas; Estelle McKee, Miami, Florida; two grandchildren and a brother, J. C. McKee, Magee.

DR. THOMAS PURSER, JR.

Services for Dr. Thomas Purser, Sr., 84-year-old physician and surgeon of McComb, were held October 23, with burial in Hollywood Cemetery.

A native of Copiah County, Dr. Purser had retired only two years ago.

He was a member of the Baptist Church and was a trustee of the Mississippi Baptist Orphanage in Jackson for many years.

He was a graduate of Tulane University, New Orleans, La.

He leaves one daughter, Mrs. H. B. Wood, Sr., and a son, Dr. Thomas Purser, Jr., with whom he was a partner in medical practice; three grandsons and two great-grandsons.

DR. ROBERT CLANTON

Dr. Robert Algeon Clanton, physician and mayor of Grenada, and one of its most beloved citizens, died in his home on Margin Street, November 29, following an illness of several months.

Funeral services were held at the First Methodist Church with the pastor, the Rev. Felix Sutphin officiating. Burial followed in Woodlawn Memorial Park under the direction of Garner Brothers Funeral Home.

Dr. Clanton was a graduate of the University of Tennessee, Memphis, Tenn.

DR. B. H. CAMPBELL

Dr. Burke Hull Campbell, 76, prominent Sunflower physician, died November 20 just before noon of a heart attack.

Born in DeKalb, he was the son of the late John A. and Philetta Hull Campbell. In February of 1905, Dr. Campbell moved to Heathman, just west of Indianola where he began his medical practice.

He had attended school in Kemper County and at Louisville, and was a graduate of Nashville University Medical College, Nashville, Tenn. He was married to the former Annie Mae Fisher in June, 1918, who survives.

Other survivors include two brothers, C. C. Campbell, circuit clerk of Sunflower County, Indianola, Guy H. Campbell, DeKalb; one sister, Mrs. Grace C. Clark, DeKalb; three nieces, one nephew, a brother-in-law, Hugh Gayden Fisher, who was reared by Dr. Campbell.

DR. L. T. KINCANNON

Dr. L. T. Kincannon, prominent eye, ear, nose and throat specialist of Birmingham, died there November 28. He was 62.

Born in Verona, Miss., Dr. Kincannon attended schools in Tupelo, Miss., and was graduated from the University of Mississippi. He received his medical degree from the University of Virginia. He had lived in Birmingham since 1920, and was an overseas veteran of World War II.

Services were held at 2 p.m., November 29. Burial was in Elmwood Cemetery.

Dr. Kincannon leaves his wife, a son, Taylor Kincannon of Birmingham; a brother, Van Kincannon of Tupelo, and three sisters, Mrs. S. P. Clayton of Tupelo, Mrs. Jack Robertson of Jackson, Miss., and Mrs. Raymond Holland of Alexandria, Va.

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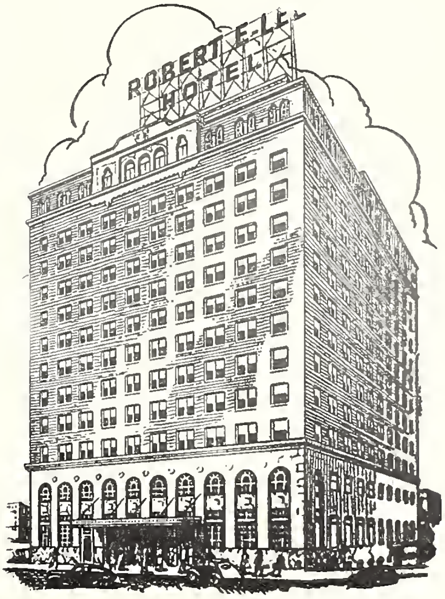

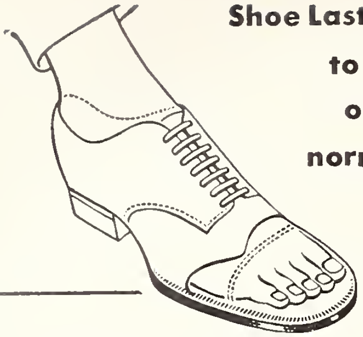

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The Clinical Evaluation of Patients with Goiter*

MAVIS P. KELSEY, M.D.[†]
Houston, Texas

Goiter, or demonstrable enlargement of the thyroid gland, is a frequent diagnostic problem for the general practitioner as well as the specialist. Despite numerous diagnostic and therapeutic advances, such as protein bound iodine determinations, antithyroid drugs, and radioactive iodine, the correct management of the patient with goiter remains controversial.

MATERIAL

In an effort to learn more about the differential diagnosis of the principal types of goiter, the records of 323 patients with goiter were reviewed. The patients had been admitted consecutively from 1944 to 1955 to The University of Texas M. D. Anderson Hospital and Tumor Institute, and none had had previous thyroid surgery. These patients represent a selected group, since referral to the hospital for many of the patients was predicated on the possibility of cancer, either of the thyroid or of some other site. This group, however, includes a large number of patients with various thyroid disturbances who were referred merely for evaluation by radioiodine and serum protein bound iodine determinations. In the 323 patients reviewed, 255 had benign thyroid lesions and 68 had cancer of the thyroid. Only patients who had not had previous biopsy of the thyroid were included, so that the success of the evaluation could be determined.

First, the patients were divided into groups according to the type of goiter and as to presence or absence of hyperthyroidism, determined at initial examination after admission to the hospital. This tentative diagnosis was then compared with the final diagnosis (Table 1).

In most instances, the tentative diagnosis was made by the staff or resident physician at the time of initial examination. In some cases, however, the presence of goiter was missed during first examination, and diagnosis was made by fortuitous discovery during treatment for some other disorder. In such instances, the patients were then referred to the thyroid clinic for observation until final diagnosis and treatment were completed.

TABLE 1
INITIAL DIAGNOSIS COMPARED WITH FINAL DIAGNOSIS

	Diffuse			*Nodular*					
Initial Diagnosis	Simple	Thyroiditis	Toxic	Multiple	Solitary	Toxic	Cancer	No thyroid dis.	Total
Non-Toxic:									
Diffuse	3	13			4				20
Nodular									
Multiple		3	3	14	11	4	36		71
Solitary		7	1	9	41	1	14	4	77
Toxic:									
Diffuse		12	88	5	8	2		6	121
Nodular			3		2	9		2	16
No Goiter							18		18
Total	3	35	95	28	66	16	68	12	323

DIAGNOSTIC ACCURACY

The difficulty in accurate determination of whether a goiter is diffuse or nodular, or even whether there is actual thyroid enlargement, is apparent in this tabulation. For example, of 141 goiters described by the examiner as diffuse, 19 proved to be nodular, and six were eventually diagnosed as non-diseased. Further, of 164 cases described as nodular goiter, seven proved to be diffuse. In 18 patients who were referred to the clinic with metastatic cancer of the thyroid, no goiter could be palpated on the initial examination.

PHYSICAL EXAMINATION

Although many goiters are difficult to palpate, correct examination of the thyroid should certainly prevent many misdiagnoses. The neck should first be well exposed to an indirect light which produces light shadows. The patient should be examined with the chin elevated. Then, when the patient swallows, the isthmus and lobes of a normal gland may frequently be seen. Thyroid irregularities, such as nodules, enlargement, asymmetry, and tracheal deviation, are easily visualized in the thin or average-weight patient. Such structures are not, however, always visible in the stocky individual with a short, thick neck. Since the thyroid is firmly attached to the trachea, swallowing causes the gland to move. Other structures usually remain immobile and can thus be differentiated. Structures mistaken for goiters among our cases include supraclavicular fat pads, bulky sternomastoid muscles, and metastatic nodules. Also, a low-lying larynx, the trachea of a thin patient, or a thyroglossal cyst was mistaken for a goiter because these structures move during swallowing.

[†]Associate Internist, the University of Texas M. D. Anderson Hospital and Tumor Institute, and Clinical Professor of Medicine, the University of Texas Postgraduate School of Medicine, Houston, Texas.

Palpation of the thyroid is performed after the patient flexes the head forward slightly to relax the sternomastoid muscles. The examiner displaces the thyroid and larynx to the opposite side with the thumb of one hand. Then with the fingers of the other hand, the displaced contralateral lobe is palpated while the patient swallows a sip of water. The same process is repeated for examination of the other lobe. The examiner may stand in front of or behind the patient. The former method is often informative, since it permits visualization of the procedure. The examiner must palpate carefully in order to note the size and consistency of the gland, and whether there are one or more nodules, substernal extension, or fixation to surrounding structures. Evaluation of nodules is the most difficult part of the examination. Occasionally in some of the cases reviewed, intrinsic asymmetry of either a lateral or pyramidal lobe, or both, was erroneously diagnosed as nodular thyroid. The number of nodules present is, of course, extremely difficult to evaluate accurately. As has been repeatedly shown a high percentage of goiters diagnosed as solitary nodules are found to be multinodular at operation (nine of 77 in this series). In many instances, of course, detection of nodular thyroid by palpation alone may be impossible even by the most experienced examiner. Since nodular goiter represents a heterogeneous group of lesions, in many cases biopsy may be necessary to establish positive diagnosis, both to determine the exact nature of the lesion and to exclude the presence of cancer. Unfortunately, surgical intervention is used in some cases that do not have nodules, whereas other cases with gross abnormalities who should have surgical exploration are observed for appreciable periods of time.

Exaggeration of normal lobulations of the thyroid may be erroneously diagnosed as nodular goiter and is a common source of confusion. This is particularly true in diffuse toxic goiter and chronic thyroiditis. Since carcinoma rarely occurs concomitantly with toxic goiter, the patient with such suspected nodules may be observed for a reasonable period without undue risk. In chronic thyroiditis, however, surgical intervention is frequently necessary to differentiate these lobulations from potentially malignant nodules.

Some of the physical signs of hyperthyroidism are especially important. For example, a rapid pulse, hyperactive heart, and moist, warm skin are nearly always present. The palms and forehead are poor sites for determination of skin moisture, whereas the skin of the arms, trunk, and particularly the anterior chest wall is less responsive to emotional or thermal stimuli and is thus more likely to manifest the actual state of metabolism. Although the magnitude of the tendon reflexes has little significance, a rapid return of the muscle to the resting state is indicative of increased metabolism. Well-defined eye changes are pathognomonic of diffuse toxic goiter and thus practically exclude the presence of cancer. Thyrotoxic tremor of the hands is fine and regular in contrast to the coarseness or irregularity of tremors in other dysfunctions. Undercutting of the nail beds is seen only in diffuse toxic goiter.

History-taking is mentioned only to emphasize the particular significance of certain symptoms. Weight loss and subjective nervousness are not always present in hyperthyroidism, but heat intolerance, good appetite, and palpation are almost universal. Also, hyperthyroidism may be so insidious in onset and bizarre in character that the diagnosis may be first indicated by less prominent symptoms, such as auricular fibrillation, intractable diarrhea, muscle weakness, and diplopia. Hyperthyroidism should be excluded in every case of congestive heart failure.

LABORATORY AIDS

Thyroid uptake of radioiodine and serum protein bound iodine studies are by far the most valuable laboratory tests that are currently available. These tests have removed most of the conjecture that was inherent in the basal metabolic rate and serum cholesterol determinations. The latter tests are still useful, however, when the others are not available or applicable, both for follow-up of treatment and in cases in which exogenous iodine interferes with radioiodine uptake or protein bound iodine studies. All of these tests, however, are useful only for diagnosis by hyperthyroidism or hypothyroidism, and are of no value for cancer diagnosis. The scintiscanner and other isotope-localizing equipment are helpful in diagnosis of thyroid nodules and for exclusion of cancer of the thyroid.

A serum protein bound iodine level of 4 to 8 micrograms per 100 cc. is normal. Higher levels are indicative of hyperthyroidism and lower levels of hypothyroidism. The test is still difficult to perform accurately and should be done under well-controlled conditions in a laboratory in which the test is done frequently, The radioiodine study is easier to do. Little technician training is required and the equipment is not prohibitve in cost for a moderate-sized hospital or a private office. Premeasured test doses of radioiodine are now available so that tedious measurement and calculation are not necessary. Only minimal radiation hazard is involved, and if the instructions of the Atomic Energy Commission are scrupulously followed, there is no radiation hazard for the patients or attending medical personnel.

There are more than 200 types of radioiodine uptake tests, but the ones most frequently used are the six-hour and 24-hour thyroid uptake study after an oral dose of radioiodine. The 24-hour urine excretion may be used as a check. The test used by the author is a six-hour uptake study. If the result is diagnostic, the test is discontinued. If results are inconclusive, the test is continued by performing 24-hour thyroid uptake and urinary excretion measurements. In addition, the serum protein bound iodine is also determined. The state of thyroid function usually can be determined by this combination of tests. The normal six-hour uptake covers a wide range of 6 to 24 per cent of the dose, with about 8 to 15 per cent representing the common range. The normal 24-hour uptake varies from 12 to 40 per cent with 18 to 30 per cent the usual range. The normal 24-hour urinary output usually varies from 50 to 75 per cent of the dose.

Therapeutic testing is used frequently in problems of diagnosis of thyroid disease. The administration of Lugol's solution, thyroid extract, and antithyroid drugs, has a well-established plaee in diagnosis and will be discussed in the section on each type of goiter.

DIFFUSE GOITER

In this study the most accurate results in initial diagnoses were obtained in cases of diffuse goiter. The three simple goiters were found in young female patients. Diagnoses were confirmed by marked, but not complete, diminution in the size of goiter after administration of 1.5 grains of thyroid extract daily over a three-month period. These patients should be observed at intervals for an indefinite period in order to detect development of involutional nodules or of chronic thyroiditis.

Chronic thyroiditis, or Hashimoto's thyroiditis, is included in this study among nontoxic diffuse goiters. A tentative diagnosis of thyroiditis was made in 16 patients. Subsequently 13 proved to have the disease (three cases of which had subacute thyroiditis). The presence of a firm, irregular goiter without nodules in a female patient usually led to the correct diagnosis. Some patients had a past history suggestive of mild hyperthyroidism, vague discomfort in the neck, and subsequent hypothyroidism. When observed early in the course of the disease, the uptake of radioiodine was occasionally found to be elevated. After several months of observation, the uptake of radioiodine frequently decreased to a normal or depressed level. The basal metabolic rate and serum protein bound iodine levels usually remained normal during these changes. The diagnosis of chronic thyroiditis was missed in 12 cases because of erroneous diagnosis of diffuse toxic goiter. This is an understandable error on prelminary examination, since in many of the cases positive diagnosis could be made only on the basis of an occasional altered radioiodine uptake, the subsequent course of disease, or surgical intervention. There were 10 patients with chronic thyroiditis whose disease was initially diagnosed as nontoxic nodular goiter. This error, often impossible to avoid, usually results from mistaking the prominent thyroid lobulations of thyroiditis for nodules. In a few of these patients adenomata were found in addition to chronic thyroiditis. The scintigram is often useful in clarification of this problem, as the uptake of radioiodine will be diffuse throughout the gland in thyroiditis and patchy throughout the nodules in nodular goiter. In several cases after thyroid extract was administered there was partial regression of thyroiditis. As a therapeutic test this proved useful only occasionally, since there was usually little response. Apparently, in a patient with thyroiditis there will be little or no regression of a longstanding goiter because of excessive scarring of the gland.

The preliminary diagnosis in 13 of 35 cases of chronic thyroiditis represents better than average diagnostic accuracy. This success may be partially examined by the fact that most of the staff physicians are alert to detect a form of the disease designated "Gulf Coast Thyroiditis," reported to be indigenous to this area. Chronic thyroiditis was also found in some patients with multiple nodular goiter and carcinoma.

The initial diagnosis of toxic diffuse goiter was 73 per cent accurate. As would be expected, several patients (15) had nodules which were not discovered at initial examination, and in 12 other cases the hyperthyroid phase of chronic lymphocytic thyroiditis was mistaken for diffuse toxic goiter. Six of the 121 patients initially thought to have diffuse goiter eventually proved to have no thyroid disease, with nervousness or alcoholism the actual causes of the mistaken diagnoses. In several instances, after other laboratory tests were inconclusive, therapeutic testing with Lugol's solution or antithyroid drugs proved the diagnosis to be hyperthyroidism. Of the 111 cases eventually diagnosed as hyperthyroidism, 103 were correctly diagnosed at the initial examination.

NODULAR GOITERS

Of 164 cases diagnosed as nodular goiter, a high degree of accuracy (94 per cent) was attained with regard to detection of nodules by palpation. Nevertheless, specific diagnosis, as to whether there were single or multiple nodules, was missed in 20 cases. Hyperthyroidism was missed in seven of these cases, and cancer was missed in 31 cases. In 77 cases of solitary nodules, 55 were diagnosed correctly, but instances of chronic thyroiditis, multiple nodules, cancer, and absence of thyroid disease were misdiagnosed in this group.

The final diagnosis in nearly every one of these patients was eventually proved by biopsy, but scintograms showed that a few patients with diffuse uptake had thyroiditis, or radioiodine uptake proved that previously unsuspected hyperthyroidism was present.

CANCER OF THE THYROID

TABLE 2

MALIGNANCY AND TYPE OF GOITER

Initial Diagnosis	No.	Benign	Malig.	% Malig.
Cancer Thyroid	33	7	26	
Multiple Nodules	77	67	10	14
Solitary Nodules	71	57	14	18
No Goiter (Metastasis)	18		18	
Toxic Goiter	137	137	0	0

In 68 cases found to have thyroid cancer (Table 2), the correct tentative diagnosis was made in 26 cases because of specific characteristics of the thyroid enlargement or metastatic lesions. These included size, degree of induration, and fixation of the gland, with invasion of surrounding structures that caused tracheal compression, dysphagia, vocal cord paralysis and hoarseness, or venous obstruction. In 18 cases, there was no palpable goiter and diagnoses were made by detection of regional lymph node metastases in 14 cases, radioiodine uptake by metastatic bone lesions in three cases, and by discovery of laryngeal metastasis in one case. Obviously, radioiodine uptake tests are worthwhile for detection of metastasis to bone if the primary lesion is not apparent. Metastases to the thyroid, particularly those from lymphomas and carcinoma, frequently may be confused with primary thyroid cancer although several such instances which we encountered are not included in this study. The accuracy of preoperative diagnosis of carcinoma of the thyroid was higher than anticipated. This accuracy is higher than that usually reported in the current literature and indicates that thyroid cancer is often apparent at initial examination. The cases in this series are, of course, highly selected and may not indicate the actual frequency with which carcinoma should be suspected. Even in this series, 24 carcinomas of the thyroid were found at operation in 148 nodular goiters, none of which had been even tentatively diagnosed as cancer. This incidence of 16 per cent (18 per cent in solitary nodules, 14 per cent in multiple nodular goiter) is further proof that surgical exploration of nodular goiter is mandatory.

The reliability of clinical impression of thyroid cancer may be reduced by physical signs that are capable of misinterpretation. For example, in seven instances a preoperative cancer diagnosis was disproved at operation. Biopsy studies showed a benign, indurated, large, nodular goiter, hyperplastic lymph nodes, or chronic thyroiditis that caused adherence of the goiter to surrounding tissues.

Careful analysis of the cancer cases showed that less than one-third of the patients had signs or symptoms that would cause the clinician to suspect the presence of cancer. One helpful diagnostic feature is the sex of the patient. Although in this series goiter occurred four times more often in females (259 of the 323 cases), the incidence of cancer was twice as high in male patients (23 of 64 goiters, or 36 per cent) as compared with cancer incidence in females (45 of 259 goiters, or 18 per cent).

It should be remembered, however, that thyroid cancer can occur at any age in either sex. The age range in this series was from 11 to 82 years. In any case of nodular goiter in children, cancer should be suspected, although this series was too small to be conclusive. Analysis of the incidence of goiter according to age shows an appreciably higher percentage of cancer incidence in patients under 30 years and after 60 years of age than in patients in age groups between these age limits (Table 3). In eight goiter patients between the ages of 10 and 20 years, five were found to have cancer, and in four goiter patients over 80, two had cancer. The duration of symptoms was not found to be helpful in diagnosis (Table 4).

TABLE 3

INCIDENCE OF MALIGNANCY IN GOITER

Age	Goiters	Malignant	% Malignant
0 - 29	62	17	27
30 - 59	187	28	15
50 - 89	74	23	31

TABLE 4
DURATION FROM FIRST SYMPTOM TO ADMISSION

Duration	*Malignant* No.	Pct.	*Benign* No.	Pct.
Unknown	20	29	90	35
0 - ½ year	15	22	58	23
½ - 2 years	13	19	48	19
2 - 5 years	10	15	38	15
5 - 11 years	10	15	21	8

No significant difference in racial incidence could be determined among the white, colored, or Latin American patients who comprised this series.

In a few cases, solitary nodules were diagnosed as benign after scintographic surveys showed a high uptake of radioiodine in the nodules. In each case, these nodules were surgically extirpated and proved to be benign on histologic examination. Hence, it is now believed that observation of such patients would be safe, since no "warm" nodules have as yet been reported to contain cancer.

SUMMARY

Records of 323 patients with goiter who had not been subjected to previous surgery were analyzed to determine the accuracy of the presumptive diagnosis at the time of admission to the clinic.

The percentage of diagnostic accuracy was reduced by inability to determine with certainty whether nodules were actually present and whether the nodules were solitary or multiple.

Other errors occurred in differentiation of nodules from exaggerated lobulations in diffuse goiters, asymmetry of normal glands, and from confusion of these formations with normal structures of the neck.

Sixteen of 35 cases with chronic thyroiditis were diagnosed correctly, as were 103 of 111 cases of hyperthyroidism.

Eighteen patients with metastasis from thyroid cancer had no palpable goiter. Twenty-six of 68 cases with cancer of the thyroid were diagnosed correctly. Although there were clinical features suggestive of cancer in these 26 cases, in 148 cases of nodular goiter there were no physical signs of cancer. In these cases surgical exploration showed 24 additional carcinomas, or an incidence of 16 per cent.

THE IDEAL PHYSICIAN

What makes "an ideal physician?" Dr. P. H. Woutat of Grand Forks, North Dakota, has provided his answer, and it's a compelling one.

The ideal physician, first, must be a man of top abilities, faultless personal habits, and the talent to inspire confidence and respect in others.

He must be active in community affairs of all kinds, and a frequent church goer.

He must be available to service, educational, religious and other groups which are seeking reliable information on medical subjects.

He must work on and contribute liberally to fund-raising campaigns for hospitals, young peoples' organizations, homes for the aged, charities and other good works.

He must be active in local and state medical societies and must be faithful in attendance at hospital staff meetings, as a participant and educator.

He must be a good family man, "with a gracious and tactful wife who abhors mink coats and other vulgar extravagances . . . "

Finally Dr. Woutat says: "But above all this, he must never fail to give his patients the finest possible medical service, keeping abreast of medical progress by reading, attendance at medical meetings, and taking frequent postgraduate courses. He must be a tireless worker and improve his public relations by spending adequate time with his patients, answering urgent calls promptly, day or night, and by not keeping his patients waiting. This must all most certainly be done for what has been vaguely defined as a reasonable fee."

All over the country, thousands of doctors are doing a splendid job of living up to such high standards as these.

Industrial News Review, Portland, Oregon.

Bronchogenic Carcinoma*

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Bronchogenic carcinoma is a disease of marked clinical importance and interest because of its increasing frequency, its possible relation to the use of tobacco, and the improved results of treatment with early case finding.

When thoracic surgery was dangerous, in years past, and when no surgeon was so daring as to open a chest without an exact pathological diagnosis, then bronchogenic carcinoma was considered nearly 100 per cent fatal, and rightly so. Although there is still nothing to cheer about with bronchogenic cancer, or indeed, any cancer, at least we now can make a diagnosis early, and with early treatment, can effect cures in some cases.

ETIOLOGY

The greatest interest of lay people, as well as medical, has been aroused recently by the studies which have been published in recent years and which seem to show a definite casual relationship between cigaret smoking and bronchogenic carcinoma. That tobacco might be of etiological significance is not a new idea. Alder[1], in 1912, mentioned this possibility in his book on malignant diseases of the lungs.

Muller[2], in 1939, offered some statistical evidence that tobacco smoking was significant, and in 1941, Ochsner and DeBakey[3] called attention to the similarity of the increased sale of cigarets in this country with the increased number of cases of bronchogenic carcinoma.

In 1950, Wynder and Graham[4] studied 684 cases of bronchogenic carcinoma, particularly with reference to smoking habits. They found 96 per cent of men with carcinoma were moderately heavy to chain smokers, as compared with 73 per cent heavy smokers in the general hospital population without cancer. Carcinoma of the lung in a non-smoker was a rare occurrence — 2 per cent. They concluded there was a definite etiological relationship.

Doll and Hill[5], of England, made similar studies with similar results, and Hammond and Horn[6], of the American Cancer Society, also published similar results in 1954.

These studies were statistical in nature and subject to the fallacies which statistical methods involve. For example, in 1929, Pearl[7] published a study which statistically showed that co-existence of cancer and tuberculosis was so rare that his findings led to the inoculation of cancer victims with tuberculin. On later review and restudy that author recanted, and it became obvious the reason cancer and active tuberculosis were rarely co-existent was because cancer killed the patient before active tuberculosis developed or was reactivated.

In the studies mentioned on tobacco use and bronchogenic cancer, the individuals studied were already cancer cases, and also the controls were hospital patients without cancer. Thus, using a hospital population, a certain amount of selection has already occurred. In the true population, there may be five in a hundred who are non-smokers, but in a hospital there may be people who already were non-smokers for reasons of prior disease or because of age, sex, and otherwise.

In the study of Hammond and Horn, the population used was a fraction of solicited friends of workers of the American Cancer Society—certainly a highly selected group and probably, again, not representative of the population as a whole.

As another example, in the study of Hammond and Horn, of males ages 50 through 59, the prevalence of cigaret smokers was 48.5 per cent. In contrast to this, a Gallup poll for June, 1954, showed a national average of 57 per cent smokers in that age group. Thus, in answer to the American Cancer Society's request for individuals to enter the study, there was apparently a tendency for smokers not to include themselves. Also, the death rates in the non-smoker population of the American Cancer Society study were much lower than the rates for the general population. This indicated that men in poor health tended to exclude themselves from the study.

A second group of evidence that tends to indict smoking as a cause of cancer is that of Wynder, Graham, and Croninger[8]. These men obtained tobacco tars by smoking a popular brand of cigarets in a machine. The tars obtained were then painted on the shaven skin of mice three times weekly for a period of several months. Of 81 tarred mice, 44 per cent developed epidermoid cancer. The mean time of appearance of the lesions was 71 weeks or one-half the life span of the mice used and corresponds to about 30 years of a human life. From these experiments, they concluded there was strong evidence of a carcinogen in tobacco tar. This, and other similar experiments, are certainly of some significance, but can mice experiments be directly applicable to humans?

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A number of other everyday chemicals will do the same thing to the skin of certain strains of mice. Although such experiments are suggestive of a casual relationship, it is not final proof, and there is certainly no reason to believe that exposure to tobacco tars alone is the definitive etiology of bronchogenic cancer.

CLINICAL CHARACTER OF BRONCHOGENIC CARCINOMA

There is no typical or well defined clinical picture of bronchogenic carcinoma. It may present as lung disease or its metastases may be the predominant symptom producing factor. For example, many cases present first as a space occupying lesion in the brain.

The majority of cases cause symptoms because of bronchial obstruction, ulceration and infection, or metastatic disease.

Bronchial obstruction results in cough, fever, chest pain, and other symptoms typical of pneumonitis which forms distal to the obstruction. Many of these cases are treated as pneumonia, catarrh, or virus infection, and definitive diagnosis is not made until much later. With antibiotics, the chest roentgenogram may show improvement in such cases, but rarely does it completely clear.

Ulceration and infection usually produce hemoptysis, cough, fever, weight loss, and many of the symptoms and signs similar to those of bronchial obstruction.

The symptoms and signs of metastatic disease are legion, and they may involve any organ in the body.

The mainstays of diagnosis are roentgenogram, bronchoscopy, study of the cytology of sputum and bronchial secretions, and thoracotomy.

The advantages of chest roentgenogram are obvious, and although it does not make a diagnosis, it is rare to have bronchogenic carcinoma with a completely negative roentgenogram.

Bronchoscopy will result in a positive biopsy and diagnosis in about 40 per cent of cases, and it is suggestive of cancer in about another 10 per cent of cases. Thus, it is obvious that a negative bronchoscopy in no way rules out cancer, and is of definitive value only when positive.

Studies of bronchial cytology are positive in experienced hands in 60 to 70 per cent of cases where an adequate number of specimens are examined. Again, however, negative cytology does not rule out cancer.

Thoracotomy is such a safe procedure in experienced hands that one should not hesitate to advise that it be carried out in any case of an undiagnosed lung lesion. In a series of 180 patients in whom diagnosis could not be made preoperatively, and in whom thoracotomy was done, Clagett and his associates[9] found 30 per cent proved to be bronchogenic carcinoma. Every one of the remainder proved to be a lesion in which resection was indicated.

Once diagnosis is established, the only effective treatment is surgical resection. The physician upon whom the first successful pneumonectomy for carcinoma was done by Evarts Graham, in 1933, is still alive and well.

In 1950, Churchill, Sweet, Soutter, and Scannell[10] reported a 5-year survival rate of 20 and 25 per cent in patients following pneumonectomy and lobectomy respectively. In 1953, Mrs. McDonald, Carlisle, Patton, and the author[1] studied the cases at the Mayo Clinic, and found that squamous cell carcinomas had about 50 per cent five-year survival rates in resected cases with only 9 per cent five-year survival rate in the small cell group. The other cell types were intermediate in prognosis.

In the Mayo series of cases, there was an exploration rate of about 50 per cent, and "curative" resection was done in about 50 per cent of these. The over-all five-year survival rate in those resected with a hope of cure was 37 per cent. The operative mortality rate was 13 per cent, but only 6 per cent in the years of 1951, 1952, and 1953.

PATHOLOGY AND FACTORS INFLUENCING PROGNOSIS

Cell Type of Carcinoma:

Although many authors tend to discount the typing of bronchogenic carcinoma, there is no doubt that in general the cell type influences prognosis. Kirklin and associates[12] found that adenocarcinoma has the best prognosis with squamous cell type close behind, the large cell undifferentiated a poor third, and the small cell type to be almost uniformly fatal.

Involvement of Hilar Lymph Nodes:

In general, in the absence of node involvement, the prognosis is much better in all cell types. Involvement of nodes does not mean there is no chance for cure, for many cases have survived 5 years and originally had node involvement. A more radical pneumonectomy has been practiced by some in recent years, in the hope that a larger field of potential spread will thereby be removed. The results of such an approach will not be forthcoming for several years.

Lobectomy versus Pneumonectomy:

McDonald and associates[13] have recently shown that in many cases there is often associated in-situ carcinoma proximal to squamous cell carcinoma of the bronchus. Thus, in this cell type, pneumonectomy, as high as can be done, is the treatment of choice. This procedure also removes more lymph nodes and lymphatics.

In the peripheral lesions, there is some reason to believe lobectomy may be as effective as pneumonectomy.

Asymptomatic Lesions:

Hood, Kirklin, and the author[14], in 1954, studied all cases of bronchogenic carcinoma seen at the Mayo Clinic. There were 29 asymptomatic cases out of 1600 cases, or an incidence of 2 per cent. Most of these cases were discovered by routine chest roentgenogram or tuberculosis survey units.

Results of bronchoscopy, cytology, and physical examination were negative in most cases. The majority were adenocarcinoma or large cell undifferentiated carcinomas. There was 100 per cent resectability without hospital mortality. About 50 per cent were still living at the time of follow-up. This is not much better than for bronchogenic carcinoma as a whole, but in view of the 100 per cent resectability, the over-all prognosis in such cases is much better.

SUMMARY AND CONCLUSION

1. Bronchogenic carcinoma has shown a definite increase in incidence in recent years. This may be due to better methods of diagnosis, to the increasing age of the population, or to an absolute increase in incidence.

2. Although both statistical and animal studies tend to indicate a direct causal relationship between smoking and bronchogenic carcinoma, it is highly possible the statistical studies made thus far have been on selected populations, and consequently, their results may be misleading. Animal experiments have been suggestive, but thus far, they have been inadequate, and may not be directly applicable to human beings.

3. Familiarity of the general physician with the clinical picture, the methods of diagnosis of bronchogenic carcinoma, and the frequent and early application of thoracotomy in those cases not diagnosable clinically will result in more cases being cured of this horrible disease.

4. As in all other cancers, the earlier it is diagnosed and the earlier the treatment, the better the chance of cure. Five-year survival rates in resected cases are as high as 40 per cent in some cell types.

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Drug Therapy for Causalgia

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FOR CAUSALGIA, at present, sympathectomy or sympathetic blocks are the only widely used and consistently effective treatment[1],[2]. A method of drug therapy using hexamethonium and dibenzyline has recently been reported[3], and we have used it successfully in two cases. Drug therapy, in principle, is especially advantageous when multiple injuries render it inadvisable to perform serial sympathetic blocks or sympathetic surgery, or when the skill and experience necessary for sympathetic blocks or sympathetic surgery are not available.

DEFINITION

Causalgia is a clinical syndrome associated with injury of a peripheral nerve containing sensory fibers; the injury is usually incomplete. The most prominent feature is pain, usually in the hand or foot of the affected extremity. The median nerve and the tibial division of the sciatic nerve are those most frequently involved. Webb and Davis[4] report an incidence of 2.1 per cent in a series of 3,326 cases of peripheral nerve injuries. In approximately three-fourths of the patients the onset of the pain varies from immediately following the injury, up to three days; however, it may be delayed for several weeks or until after neurorrhaphy. The pain is usually described as "burning," "aching," "throbbing," or in other terms such as "knife-like," "twisting," "crushing", or a "pressure." It is commonly persistent but is subject to accentuation by emotional stimuli, changes in environmental temperature, or cutaneous stimulation of many kinds. In severe cases the whole attitude of the patient changes as his entire conscious effort is centered on the agonizing pain and on his defense of the affected extremity against all possible stimuli. The pain is usually localized in an area corresponding to the sensory distribution of the affected nerve; however, a stocking or glove type of distribution occurs, or other more diffuse patterns, particularly when an incomplete nerve lesion has been caused by a circular constriction of the extremity[5].

Edema, periarticular fibrosis, osteoporosis, and vasomotor disturbances with trophic changes of the skin are frequently seen with causalgia. But these same conditions are present in peripheral nerve lesions not accompanied by causalgic pain, and thus are not usually considered as an essential part of the syndrome.

ETIOLOGY

The cause of the causalgic syndrome has not been satisfactorily explained. There is widespread opinion that the sympathetic nervous system is in some way instrumental, either by actual production of the pain or by conduction of the stimuli. Many varied theories of the etiology have been proposed[6], but the therapeutic response to sympathetic blocks or sympathectomy seems significant. Recently, there seems to be increasing evidence of the existence of afferent sympathetic pathways besides the efferent pathways which have been explored for some years[7]. If their presence can be proved, a great weight will be thrown behind the theory by which afferent stimuli are supposedly carried by sympathetic nerves. Some state that a diagnosis of causalgia cannot be made unless the pain is relieved by a sympathetic block or sympathectomy.

Rasmussen and Freedman[8] reported that 6 per cent of their patients obtained permanent relief of pain with one sympathetic block, and that repeated blocks cured an additional 7 per cent. Thus, in an appreciable percentage of cases a temporary interruption of sympathetic pathways can produce permanent relief of pain.

METHOD OF DRUG THERAPY

The use of hexamethonium and dibenzyline as sympathetic blocking agents in the management of causalgia is reported by Fowler and Moser[3]. It is known that hexamethonium as a ganglionic blocking agent is poorly absorbed orally but effective intravenously or subcutaneously. The onset of action is within one to five minutes and lasts one to six hours. Dibenzyline, on the other hand, is effective orally as well as intravenously. Theoretically, its effect is at the neuro-effector junction, blocking the action of circulating epinephrin without altering conduction in the ganglia. The onset of its action is somewhat variable, but the duration (two to twenty-four hours) is more sustained than that of hexamethonium. Thus, Fowler and Moser felt that dibenzyline would be a suitable drug for oral therapy, after a therapeutic trial of a rapid-acting sympathetic blocking agent such as hexamethonium. A test dose of hexamethonium was given with the patient in the recumbent position to minimize hypotensive effects. Fifty mg. of hexamethonium in 10 cc. of saline solution were injected intravenously over a ten- to fifteen-minute period. The injection was discontinued promptly if relief of pain occurred prior to receipt of the total dosage. The patient was kept recumbent for at least one-half hour following the test. Dibenzyline was given orally only if the test was positive. It was suggested that 10 mg .of dibenzyline be given orally, four times a day. If the starting dose was ineffective, after forty-eight hours, it was gradually increased until either a maximum relief of pain occurred or a total dosage of 120 mg. a day had been reached. Most of the patients could be ambulatory without appreciable hypotension on doses in the range of 80 mg. a day. The patient was left in bed or subjected to sympathectomy if the lowest pain-relieving dose produced significant hypotension. Dibenzyline was administered for a three-week period. If the pain recurred, the drug was started again on another three-week course or the patient was offered sympathetic surgery. Some patients who had a minimal residual discomfort did not feel that it was severe enough to warrant surgery.

For twenty-five patients, Fowler and Moser reported the following results:

Fifteen required no treatment other than drug therapy.

Four had relief of pain only while taking the drugs, but subsequently had sympathectomy with permanent relief.

Three obtained only partial relief on drug therapy, but one of these had no additional relief with sympathectomy.

Three received no benefit from drug therapy. Two of these were not improved by procaine block or sympathectomy. The third, while he had complete cessation of pain when given hexamethonium intravenously, probably did not receive sufficient amounts of dibenzyline to be effective, since he was given only 30 mg. a day.

CASE REPORTS

CASE 1. A fourteen-year-old white male complained of a burning pain over the dorsum of his left foot while in skeletal traction. He had sustained a supracondylar and mid-shaft fracture of the left femur and a posterior dislocation of the left hip. There was a foot drop on the same side due to peroneal nerve injury that was probably the result of the posterior dislocation of the hip. Morphine did not relieve his pain. Approximately three weeks after injury, hexamethonium was given with almost complete relief in a matter of a few minutes. The following day the pain recurred, and 10 mg. of dibenzyline were given, four times a day. Within twenty-four hours he was comfortable enough to sleep, but the pain was not completely relieved. Consequently, the daily dose was increased to 60 mg. with complete relief of pain. He received the drug for a three-week period. There has been no recurrence of pain since he was last seen, four months after drug therapy.

CASE 2. An eleven-year-old white male with a shot-gun wound of the right arm had a comminuted fracture of the distal one-third of the humerus with partial median nerve laceration. Four hours after the injury the wound was débrided and placed in a long-arm cast on an abduction humeral splint. Within twenty-four hours the patient complained bitterly of a severe burning pain involving the entire right hand, which he was loathe to move or allow to be examined. For the next several days, in spite of large doses of narcotics, including morphine, he remained in agony, with a disruption of eating and sleeping. He kept a moist wash cloth in his left hand with which he both protected and intermittently bathed the exposed portions of his right hand. A cervical sympathetic block was performed two weeks after injury with immediate and complete relief of pain which lasted three to four hours. A second block the following day was successful in relief of pain but an immediate, severe reaction, apparently to pontocaine, occurred. Pain again recurred. Twenty-five mg. of hexamethonium were given intravenously with immediate relief of pain for two hours. Dibenzyline, 5 mg. four times daily, was begun, but pain was not completely relieved until the dose reached 15 mg. four times daily, with the patient still fully ambulatory. All narcotics or analgesics were discontinued. Dibenzyline was discontinued after only ten days. After an additional week without medication of any type, the patient was discharged, free of pain, with the arm in a hanging cast. He was seen one week later because his causalgic pain had returned, approximately one to two days after discharge, and a sympathectomy was performed the following day with prompt relief of pain. He was discharged one week following operation, free of pain, and on no medication.

DISCUSSION AND SUMMARY

The pain following sciatic nerve injury caused by posterior dislocation of the hip usually lasts for several months, but commonly disappears spontaneously. In the first patient here reported, the prompt and apparently permanent relief afforded by hexamethonium and dibenzyline was gratifying. The second patient had a severe causalgia following partial interruption of the median nerve. The pain was such that a neurosurgical consultant felt that sympathectomy was indicated. The relief of severe symptoms in this patient was even more dramatic. It appears that hexamethonium and dibenzyline may be of value in the diagnosis and therapy of causalgia, as proposed by Fowler and Moser[3].

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The Surgical Aspects of Jaundice*

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It is most important for the surgeon who treats the jaundiced patient to be familiar with methods of establishing a correct diagnosis in a high percentage of cases. This is often a difficult as well as a grave responsibility. The surgeon should be especially careful to avoid operating upon the patient when the cause of the jaundice is due to some generalized disease of the liver such as hepatitis or cirrhosis of the liver. On the other hand, it is a well known fact that serious liver damage will result from obstructive jaundice which is allowed to persist for a long period of time without treatment. Because of this, the surgeon should be especially familiar with the criterion which establishes a diagnosis of obstructive jaundice. Surgical therapy should be instituted without delay in such a case.

As is true with most conditions we are called upon to treat, the history is the most important contributing factor in establishing a correct diagnosis in the jaundiced patient. A careful physical examination should likewise accompany the history when it is taken from the patient. Certain laboratory procedures may prove to be exceedingly helpful. It is significant, however, that there is at this time no single laboratory test and, in fact, there is no combination of tests which will unequivocally establish the diagnosis as to whether a given patient with jaundice is suffering from extrahepatic biliary obstruction or from disease within the liver itself. It is true, however, that there are some tests which are helpful and when they are combined with a careful history and a careful physical examination can lead to a correct diagnosis in a high percentage of patients.

A very simple but very helpful laboratory test in the jaundiced patient is the foam test for bile which is run upon the urine specimen. In this test, the physician simply shakes the specimen bottle and in daylight observes to see whether or not a yellowish tint is present in the foam which forms on the top of the urine specimen bottle. Likewise the simple matter of observing the color of the patient's stool either in the commode or on the gloved finger frequently gives objective evidence which is quite helpful in establishing a definite diagnosis. Such objective observations on the part of the physician are much more helpful than a report concerning the color of the stool by the patient in many instances.

The large number of laboratory procedures which has been suggested for patients with jaundice and, particularly, for patients suspected of having liver disease attests to the fact that none of these methods is entirely reliable. We most frequently use the icteric index, serum bilirubin level, the alkaline phosphate, the thymol turbidity, and the cephalin flocculation tests. In a patient who has a definitely elevated serum bilirubin level and a definitely elevated serum alkaline phosphatase where the jaundice has not been present for a long time we usually feel that this patient is very likely suffering from an extrahepatic biliary obstruction. A positive cephalin flocculation and thymol turbidity test frequently indicates liver damage. This may be due to hepatitis or to cirrhosis. It must be remembered, however, that a patient who has long standing obstructive jaundice of the extrahepatic biliary tree may show very serious liver damage.

The radiologist frequently proves very helpful in establishing the diagnosis of gall stones. Mixed stones which contain calcium rings are thoroughly typical in appearance and easy to diagnose. It is well known, however, that stones which are made up entirely of bile pigments and cholesterol do not cast a positive shadow. Such stones may be visualized as negative shadows in a number of patients provided the gall bladder concentrates the dye sufficiently to enable one to see the outline of the stones as filling defects. We normally consider the patient who has non-visualization of the gall bladder and who is not jaundiced to have gall bladder disease. Conversely, good visualization of the gall bladder usually suggests the absence of disease in this organ. Because of the fact, however, that some of the modern dyes are concentrated so well by the gall bladder it is possible to be led astray since we have seen a few patients where the gall bladder visualized very well indeed and still the patients possessed gall stones which did not show in the film.

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VARIOUS TYPES OF "SURGICAL JAUNDICE"

The surgeon must be familiar with certain types of hemolytic jaundice as well as with the usual types of obstructive jaundice. Congenital hemolytic jaundice is a well recognized clinical entity. The diagnostic criteria for this disease are well known and it is important that the appropriate test be carried out in order that such individuals may be correctly diagnosed and properly treated. A number of individuals who suffer from hemolytic jaundice do not have serious symptoms until they have reached the age of adolescence or beyond. In other instances, congenital hemolytic jaundice may appear quite early. Splenectomy frequently gives a very spectacular improvement in such patients.

The common bile duct may be obstructed as a result of inflammation in or about the duct without stones being actually present in the bile duct. In such instances, the obstruction is usually secondary to an acute inflammatory process of the gall bladder which produces a marked amount of edema in the region of the common bile duct. It is quite true, however, that jaundice in such patients is rarely as deep as that which we commonly associate with obstruction from a tumor in the pancreas or from stones which are seriously impending the passage of bile through the common duct. Sometimes, however, particularly in a patient who has had gall bladder colic it may be difficult to determine whether the jaundice is produced by edema or by a stone within the common duct. If the gall bladder is markedly inflamed particularly in the region where it joins the cystic duct and if the common bile duct is not distended and one is unable to palpate a stone in the duct, then frequently one is justified in assuming that the jaundice was due to edema. On the other hand, if one is able to palpate a stone in the duct or the duct is significantly enlarged we usually feel obligated to explore the common bile duct in order to demonstrate as far as possible the presence or absence of stones in this structure. If there is evidence of a stone in the common duct, exploration is certainly indicated. However, it must always be remembered that as a general rule the exploration of the common bile duct does add to a certain extent to the morbidity and mortality of cholecystectomy.

The majority of cases of surgical jaundice are the result of stones in the common bile duct. The majority of these stones have been formed in the gall bladder and have passed into the common duct by way of the cystic duct. In other patients, particularly those where the gall bladder has been removed, the presence of a stone in the common bile duct may indicate that such a stone was actually formed in the common duct or liver or it may simply indicate that this stone was not found at some previous exploration of the common bile duct. A common duct stone that contains calcium is believed almost certainly to have been formed in the gall bladder. It was demonstrated a number of years ago by Phemister that persistent obstruction of the cystic duct caused calcium to be deposited in the gall bladder. Thus, if bile pigment stones or cholesterol stones are present in the gall bladder and the patient undergoes an episode of cystic duct obstruction, calcium carbonate will be secreted from the gall bladder wall and deposited on the surface of stones present within the gall bladder. It has never been demonstrated, to our knowledge, that calcium carbonate is deposited on stones which are formed in the common duct itself.

A typical patient with jaundice due to obstruction of the common duct as a result of stones gives a history of fairly typical biliary colic. The pain is quite severe, is most frequently present in the right subcostal region or in the epigastrium. This pain is frequently referred to the region of the right shoulder or to the back nearer the midline.

The patient with a tumor involving the ampulla of Vater or the head of the pancreas according to most frequently quoted sources exhibits a painless type of jaundice at least in the earlier stages. We should hasten to point out that occasionally a patient with painless jaundice which develops gradually will be found to have a common bile duct filled with stones. It is also true that many patients who have a malignancy obstructing the lower end of the common bile duct will have definite pain. As the tumor grows larger and invades other structures, this pain more frequently becomes more pronounced. These variations from the so-called usual rule of painless jaundice meaning malignancy and painful jaundice meaning stones has a very definite practical application. I can recall one specific patient who was very markedly jaundiced, the skin being that of a deep bronze color and yet this patient had never had any pain. The patient was presumed to have a hopeless malignancy, however, at exploration we were happy to find the common duct obstructed by eight large stones which were packed in its lumen. Following removal of these stones, the patient made an uneventful recovery and has been leading a normal life since. It is unfortunately true that some patients who have had jaundice associated with pain and in whom it was hoped they would have stones proved to have a malignancy. Courvoisier's Law teaches us that a distended gall bladder in a patient with painless jaundice is most likely to be suffering from a malignancy of the head of the pancreas or distal end of the common bile duct. The patient who has jaundice especially if associated with pain and a non-palpable gall bladder is more likely to have jaundice as the result of stones. This is because of the fact that a gall bladder which has been diseased for a period of time is frequently thick walled and contracted as a result of the recurrent chronic inflammation and the resultant fibrous tissue changes in the wall of the gall bladder. Exceptions to this law, however, are frequent enough so that one cannot place a great deal of reliability upon the criteria offered by Courvoisier.

Benign stricture of the common bile duct in the majority of cases results from an injury to the duct which occurs at the time of cholecystectomy. A stricture of the common bile duct occasionally results from severe inflammation in or about the duct. Very rarely a stone which is present in the lower end of the duct for a long period of time may be associated with ulceration, cicatrix formation, and a gradual narrowing of the duct. Also in a very rare patient with severe inflammation secondary to a duodenal ulcer, there may be some obstruction to the common bile duct as a result of this. The fact still remains, however, that the majority of benign strictures of the common bile duct result from injuries to the duct which occur at the time of cholecystectomy. Someone has very aptly stated that it is far better in doing a cholecystectomy to leave a quarter of an inch of the cystic duct than it is to remove a sixteenth of an inch of the common duct!

In the event that the common bile duct has been injured at the time of operation for gall bladder disease, a review of the record will usually show that this occurred in one or two types of cases. Strangely enough these injuries occur occasionally in patients who are very thin where the exposure is easy, the operation appeared to cause the surgeon almost no difficulty and where it was described as routine. In the so-called "easy" case, the duct may be tented in such a manner that when traction is placed upon the gall bladder that the clamp was supposed to have been placed upon the cystic duct actually included a portion of the common duct. In such an instance, the common duct may be ligated or a portion of its wall may actually be cut away. In such instances the surgeon usually does not notice that anything is wrong until a few days after operation when he is disturbed by a large amount of bile which is apt to be draining from the wound and also by the fact that the patient is apt to be jaundiced.

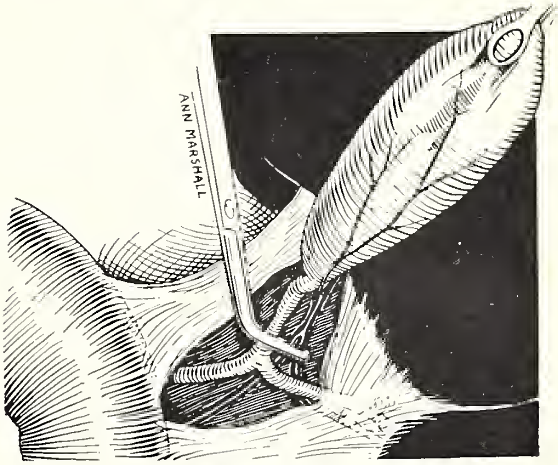

FIGURE I

Drawing illustrates how hepatic artery may be tented and accidentally clamped during cholecystectomy. The common duct may also be injured by being clamped during course of cholecystectomy.

The other type of case in which injury to the common duct may occur is the very difficult gall bladder particularly the case where the surgeon is troubled by severe hemorrhage. In such an instance if the surgeon clamps blindly in the depths of the wound, a clamp or a suture may be inadvertently placed upon the common bile duct. In such cases frequently the bleeding point can be found by exerting pressure on the hepatic artery. The surgeon or his first assistant can place the index finger into the foramen of Winslow and with the finger behind the hepatic artery and the thumb in front of the hepatic artery this vessel may be usually compressed between the thumb and index finger. After this has been accomplished the field is made dry by using suction and gauze sponges. A slight release of the pressure being exerted by the thumb and index finger will then cause the bleeding point to become apparent in most cases. It is obvious that only the bleeding point should be ligated.

METHODS USED IN THE SURGICAL TREATMENT OF COMMON DUCT STRICTURE

In general, three methods have been used to correct this condition. They consist of: 1) Resection of the area of stricture of the duct with end to end anastomosis of the duct. 2) An anastomosis between the proximal end of the common bile duct and some portion of the gastrointestinal tract, namely, stomach, duodenum, or jejunum; 3) the intrahepatic cholangiojejunostomy.

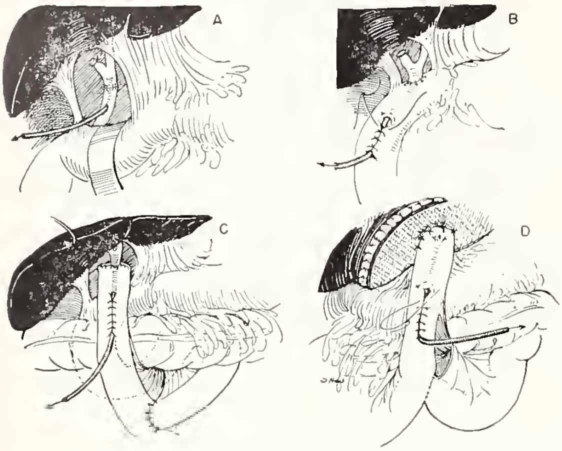

FIGURE II

Drawings illustrate various methods used in surgical treatment of common duct stricture.

It is generally agreed that the most satisfactory and physiological method of repairing a stricture of the common duct consists of identifying the common duct, excision of the area of stricture and performing an end to end anastomosis.

It is likewise generally agreed that when the anastomosis of the duct is made over a catheter or T tube it is wise to bring the catheter or T tube out from the duct through an opening other than that where the anastomosis of the two ends of the duct was performed. In many instances it is exceedingly difficult to find the lower end of the duct. There may have been an abscess present which destroyed a considerable portion of the duct, or indeed it may have been excised in an exceptional case. In such instances if one can definitely find the superior end of the common bile duct this may be sutured into the duodenum without tension or at times into a defunctionalized loop of jejunum, the Roux en Y procedure.

The most difficult part of such an operation frequently consists in being able to expose the common duct remnant. Patients who have such a condition are difficult operative cases. Perhaps there are a few conditions in the upper abdomen which demand so much technical skill, ingenuity, and judgment as the repair of the common duct stricture. Another point of extreme importance if the stricture is to be corrected permanently is that whatever type of anastomosis is carried out shall unite mucosa to mucosa. A number of years ago it was fairly common practice to implant a fistulous tract into the bowel wall or stomach. Such an implantation relieved the patient of jaundice for a time, however, the permanent results were almost always poor since as would be expected the fibrous tissue continued to contract and eventually the tract was obliterated.

In an occasional patient suffering from benign stricture of a common duct it becomes impossible to demonstrate any common duct whatsoever. It is in such patients that the Longmire procedure may prove life-saving. In such instances where one is unable to find a common bile duct remnant, it is possible to cut into the left lobe of the liver, to identify the distended duct which drains the left lobe of the liver and to carry out an anastomosis between this duct and a loop of jejunum. We have personally used this procedure to our great satisfaction in an occasional case which could not be treated otherwise.

Neoplasms producing obstructive jaundice are most frequently malignant. Occasionally one encounters a common bile duct tumor which is benign and which can be successfully resected without great difficulty. Recently we had an opportunity to see a patient in the operating room, suffering from obstructive jaundice, who had an olive sized tumor in the common bile duct. This was at first thought to be a large stone but proved to be neoplastic in type. The tumor was resected; the upper end of the common duct was anastomosed to the duodenum; and the patient at the present time is in good condition.

Malignant tumors involving the ampulla of Vater are more likely to be cured by the Whipple operation where the duodenum and the head of the pancreas are resected as one block of tissue. The number of patients suffering from carcinoma of the head of the pancreas who have been cured permanently by the radical pancreatico-duodenectomy is quite small indeed. Usually by the time the diagnosis is established metastases have occurred. This does not mean, however, that in an occasional patient the radical operation should not be used provided it offers the patient some chance. In other instances where a cure is impossible the patient may be relieved of the jaundice and made much more comfortable by carrying out some type of short circuiting procedure such as a cholecystojejunostomy.

SUMMARY AND CONCLUSION

1. It is most important in the management of the jaundiced patient to establish the correct diagnosis as early as feasible.

2. A careful history and physical examination when combined with a foam test of the urine and inspection of the feces will in many instances enable the surgeon to make a correct diagnosis. Laboratory tests and x-ray examinations are helpful, though they do not replace careful clinical judgment.

3. Proper preparation of the patient before surgery is exceedingly important.

4. Some methods of surgical treatment are discussed.

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MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

EXHIBITORS — FEB. 12-15, 1957

Abbott Laboratories, North Chicago, Ill.
Audio-Digest Foundation, Glendale, Calif.
Ayerst Laboratories, New York, N. Y.
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Probably he who never made a mistake never made a discovery—Smiles

The journey of a thousand miles begins with one step—Lao-tse

Imperforate Hymen and Its Sequelae

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IMPERFORATE hymen is the result of failure of the septum between the vagina and the urogenital sinus to break down. At the time of puberty, if the remainder of the genital organs are normal, the onset of menstruation causes the menstrual fluid to back up behind the hymenal membrane resulting in hematocolpos, hematometra and hematosalpinx. This entity has been recognized for over 300 years—Ambrose Paré being one of the first to describe it.

Usually symptoms develop with the menarche and the imperforate hymen is then discovered. In recent years several cases have been reported in children under 12 years of age[1],[2]—the youngest being only 2½ years[3]. In this age group a glary, milky fluid is usually encountered. The quantity of fluid may be considerable—Bowen[2] reporting 2,000 cc. from his patient. Only rarely is the diagnosis delayed until several years after the menarche.

In 1939 Tompkins[4] of the University of Pennsylvania reviewed the literature and reported 113 cases. To this he added five cases with which he was personally associated. In 1942 Doyle[5] again reviewed the literature and reported 176 cases. Gordon[6] found eleven cases reported at Bellevue Hospital in a period of twenty years. Palmer[7] observed four cases in thirty-two years of practice and Hammon[8] observed seven cases. Warner and Mann[9] found an incidence of 0.024 per cent out of some 20,000 gynecologic admissions at the Elizabeth Steel Magee Hospital. This is in essential agreement with the 0.014 per cent reported by Herbert[10]. Thus it is apparent that although imperforate hymen (with its sequelae) is not a truly rare condition, it is certainly an uncommon occurrence.

THE MECHANISM OF PRODUCTION AND PATHOLOGY

There is considerable disagreement as to the origin of the vagina and hymen, one group believing that they develop entirely from the mullerian ducts while others believe that they originate from the urogenital sinus. The third group feels that both structures contribute to the development of the vagina and hymen. In any event, the septum between the urogenital sinus and the vagina persists, sealing off the vagina from the outside world. By agglutination of the edges of the hymen, infection may occasionally be the etiological factor in the production of imperforate hymen.

The glary, milky fluid of the pre-pubertal group or the menstrual blood of the group at or past menarche progressively dilates the vagina, cervix, uterus and finally the fallopian tubes. The fallopian tubes are usually sealed at their fimbriated ends and this is probably the result of chemical irritation by the collected fluid. Endometriosis is not commonly associated with this condition.

Reports on pathological specimens are relatively rare, but it would appear that the chief changes are pressure atrophy of the mucous membranes, endometrium and muscle layers.

The character of the collected blood varies somewhat according to the length of time it is retained in these organs—the longer the blood has been present the thicker and more mucoid it becomes. Most commonly, it is a tarry, thick substance which is sterile on culture and which contains a large amount of epithelium.

SYMPTOMATOLOGY

The three cardinal symptoms of the imperforate hymen and its associated hematocolpos, hematometra and hematosalpinx are amenorrhea, pain, and inability to void. Other symptoms are those of weight in the lower abdomen, a feeling of pressure, symptoms arising from pressure on any of the adjacent viscera, a feeling of a mass bulging between the legs in the area of the genitalia, pain on sitting, and pain with a feeling of shifting weight during ambulation. According to most authors, amenorrhea is seldom the chief complaint This may be due to the hesitancy on the part of the young girl to admit lack of menstruation for various reasons, or to the belief that hers is simply a case of delayed menarche.

The onset of pain may be insidious or sudden and acute—simulating appendicitis, ureteral calculi, or a twisted ovarian cyst. The large majority complain of only a very mild, dull, aching pain in one or both lower quadrants. Explanations offered for the inability to void are: 1) The pressure of the fluid in the vaginal vault exceeds the pressure within the urethra, 2) the accumulated fluid destroys part of the reflexes for voiding, or 3) distortion and kinkling of the urethra with displacement of the trigone of the bladder. Whatever the explanation may be, it is one of the most common symptoms and in our particular case was the chief complaint bringing the patient into the hospital.

DIAGNOSIS

In far advanced cases the diagnosis is obvious upon inspection of the genitalia. The surprising thing is that this examination is frequently not made, and the diagnosis is missed on this account. A bulging hymenal membrane, usually of a blue color, can be seen and an abdominal mass is palpable. Transmission of a fluid wave from the abdominal mass to the bulging membrane can be elicited. In less advanced cases the diagnosis may be confused with atresia of the vagina, congenital absence of the vagina, or other congenital abnormalities such as the vagina opening into the urethra.

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TREATMENT

Treatment is excision of the hymenal membrane. Antibiotics should be given for at least 24 hours prior to the operation. Simple incision of the membrane should not be performed since re-agglutination of the cut edges may occur. Excision of the membrane will usually result in the release of a large amount of fluid. Vaginal examination should be avoided at this time, for fear of introducing infection, although reetal examination should be done to determine the extent of tubal involvement, and to assist in the expression of the fluid. Antibiotics should be continued for at least three weeks following surgery. Six weeks after the operation, pelvic examination should be done; and if tubal enlargement is present, laparotomy should be performed and the tubes opened and emptied.

The most serious complication is infection. This may result in endometritis, parametrisis and salpingitis. Such infection has been recorded up to six weeks after the initial procedure. Fatalities are due to retention of old blood in the tubes and subsequent infection of this excellent culture medium. The mortality rate in cases reported prior to the general use of antibiotics was 6.7 per cent. The danger of infection is probably appreciably less now, but it still should not be disregarded. Bleeding from the incised membrane is not uncommon, but usually not serious.

A large number of patients who have had imperforate hymens excised begin menstruating normally, and have no further difficulty. Subsequent pregnancy is occasionally reported.

The case to be reported here is presented for three reasons. First, this condition is relatively uncommon. Secondly, the patient had reached the age of 20 before medical advice was sought. Thirdly, this case illustrates several of the common findings in this disorder and emphasizes the importance of adequate examination of the young girl who does not menstruate at the expected age.

CASE REPORT

The patient, a white female, age 20, presented herself at the University Hospital at 10 p.m. on October 23, 1955, with a chief complaint of inability to void. She had last voided some 14 hours previously. There were no other complaints and the patient considered herself to be in excellent health.

The past history revealed that some 18 months previously people had begun to ask her if she were pregnant. At that time she had first noticed that her abdomen was enlarging, and this enlargement had been progressive. The patient stated that she had not been concerned about this since she had not had sexual intercourse and thus had no fear of pregnancy (she simply believed that she had an unusually large abdomen). There had been no other symptoms of pregnancy. She stated that she had started menstruating at the age of 16 years. Since that time she said that menstruation occurred every 28 days with a flow lasting for 5 to 8 days consisting of a pink fluid which required the use of two to three pads per day. Preceding the onset of flow there had been some cramping pain in the lower abdomen. She had experienced minimal back ache and no rectal pain. Following the flow she had experienced some residual soreness. There had been no nose bleeds associated with or between the periods. She had never had any episodes of acute abdominal pain.

Physical examination revealed a well developed, well nourished white female in no apparent distress. Her vital signs were within normal lights. The breasts were normally developed, and there were no accessory signs of pregnancy. Abdominal examination showed a soft, cystic mass arising from the pelvis equivalent in size to a 6½ months gestation. It was thought to be the uterus. The bladder could be felt as a separate mass anterior to this and catheterization produced 900 cc. of dark yellow urine. Examination of the external genitalia revealed a blue, bulging, fluctuant mass protruding from the introitus. The urethra was identifiable above the mass, and there were no other abnormalities. Rectal examination revealed a fluctuant mass in the region of the vagina and above this a somewhat firmer mass in the region of the uterus. Laboratory studies were normal with the exception of 15 to 18 white blood cells per high powered field in the urine and a white blood count of 14,450.

X-ray studies of the urinary tract by means of a cystogram and intravenous pyelogram revealed normal function with no evidence of communication with the mass. The bladder was compressed posteriorly and there was a slight compression of the right ureter at the pelvic brim (figures 1 and 2). Barium enema revealed the unusual finding of compression of the distal rectum as well as the proximal rectum and sigmoid (figure 3). It was felt by the radiologist that the compression of the distal rectum could not result from the usual abdominal mass and must of necessity represent extrinsic pressure from a mass in the area normally occupied by the vagina.

The patient was given tetracycline, and 48 hours later the hymenal membrane was excised under general anesthesia. Eighteen-hundred cc. of a black, tarry fluid was obtained. Recto-abdominal examination assisted in emptying the uterus. The tubes could be palpated and were thought to be slightly enlarged but emptied somewhat under pressure. Culture of the fluid showed no growth. Pathological report was compatible with the tissue of a hymenal membrane.

The patient's postoperative course was smooth. She was afebrile, and the vaginal discharge had almost disappeared by the sixth postoperative day. She was discharged on the tenth postoperative day and instructed to take triple sulfa tablets for 14 days.

The patient was seen once more seven days after discharge, at which time she complained of a rash. This was thought to be an allergic drug reaction and tetracycline was substituted for triple sulfa.

Following this the patient disappeared, and efforts to contact her were in vain. Finally, nine months after her discharge, follow-up was obtained

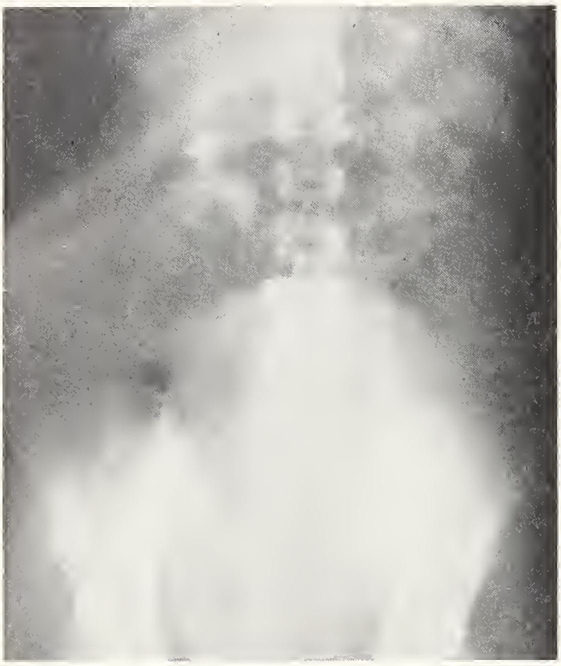

FIGURE I

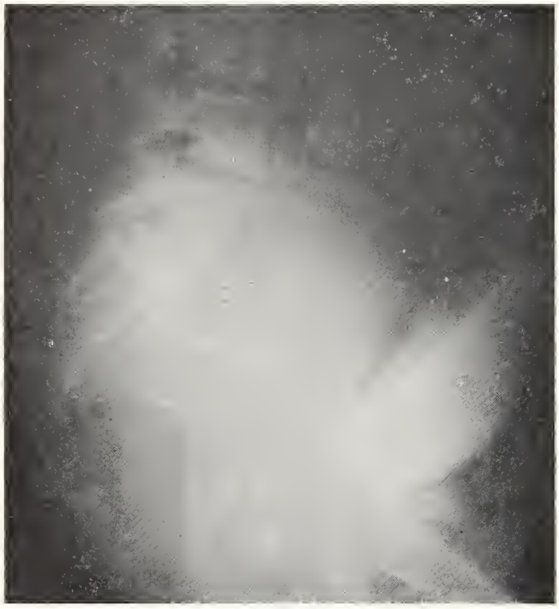

FIGURE II

through a local physician whom she had consulted. At that time her history indicated that she had had a normal menstrual period beginning approximately 36 days after excision of the hymenal membrane. Normal periods of five days' duration followed for the next two months; and in March, 1956 she had had a one-day period. She had married in December; and there was no problem with intercourse, her only difficulty being a profuse vile-smelling discharge. At the time she was seen by her physician examination revealed the external genitalia to be normal, the introitus marital, and the vagina unusually long and without stricture. The cervix was soft, dilated 2½ centimeters, and was short on the right side. The fundus of the uterus showed enlargement compatible with a 28 weeks gestation, and fetal heart sounds and movements were noted.

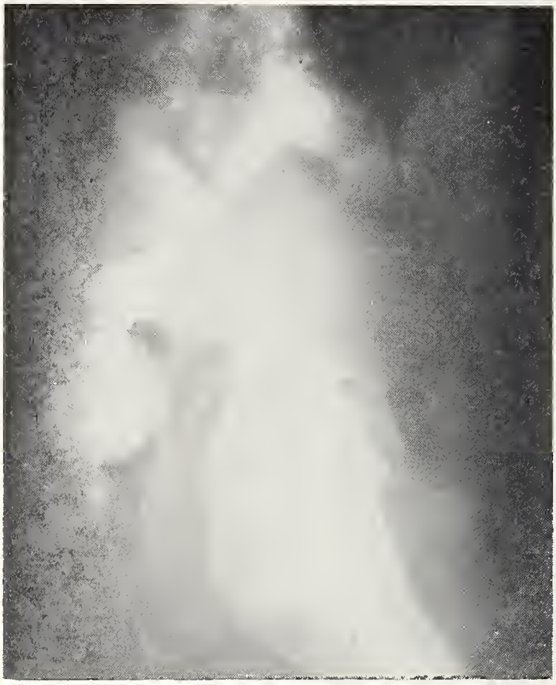

FIGURE III

SUMMARY

1. The incidence, pathological features, and clinical picture of imperforate hymen are discussed.

2. The case of a 20-year-old white female with imperforate hymen is reported. Her presenting complaint was inability to void. The membrane was excised with the release of 1800 cc. of fluid, her convalescence was uncomplicated, and she has subsequently become pregnant.

3. The importance of adequate examination in cases of delayed menarche and the use of antibiotics with wide excision of the hymenal membrane in cases of imperforate hymen are emphasized.

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Ovulation and Irradiation*

WALTER H. SIMMONS, M.D.
Jackson, Miss.

THE USE of "low dose" x-ray irradiation for the production of ovulation is not new, having been used by Kaplin, in New York, for twenty or twenty-five years, but is relatively new in my hands. I became interested because I felt that nothing else could be relied upon to produce ovulation. Many methods have come and gone, but there is no good evidence that any of them actually produced ovulation. These included thyroid, estrogenic hormone, progesterone, vitamin E and anterior pituitary-like hormones. The latter, especially antuitrin-S, perhaps got the biggest "play" of all. It should be remembered that sometimes a woman who is not ovulating may return to ovulation *spontaneously*.

The treatment of low dose x-ray irradiation is applied to the ovaries as well as the pituitary. Many experts think that the irradiation to the latter organ has no effect and it is only the ovaries which produce ovulation. The average amount of irradiation received by the ovaries in a given treatment ranges from 15 to 25 R. Treatments are usually given once weekly for three times, totaling about 50 to 75 R. This compares with 2 to 3 thousand R for the average treatment of carcinoma of the ovary and to about one R for a pelvimetry series where two or three exposures would be made.

I wish first to make a few remarks about the physiology of ovulation. Many of you know this quite well and I must ask your indulgence. Ovulation is the release of the ovum by the ovary which usually takes place with each menstrual cycle. It usually occurs about fourteen days before the onset of the next menstruation. An individual may ovulate and not menstruate and vice versa. Ovulation does two important things. One, of course, is the production or release of the ovum. The other, equally important, is the production of progesterone. The progesterone is produced at the site from which the ovum was released and this area is called the corpus hemorrhagicum, but in a short period of two or three days becomes a corpus luteum.

Ovulation may be determined in several ways. First, and cheapest, is an accurate history. Generally, a woman who menstruates regularly, within one to two days, and has fairly uniform flow over a constant period will be ovulating. This cycle may vary from twenty-three or even as short as twenty-two days up to thirty-six to thirty-seven days and the flow may vary from three to six or possibly seven days. The important thing is that the cycle and flow are reasonably regular and uniform. In such an individual almost certainly ovulation is taking place. Another concomitant of ovulation is the presence of primary dysmenorrhea. Primary dysmenorrhea is the type so commonly seen in young girls where there is cramping a day or so before the onset of the menstrual period, but as soon as the flow is well established, pain is relieved. The mechanism here is not known, but it is known that when an individual experiences primary dysmenorrhea she ovulated that cycle. Another word about the regularity of the menstrual flow and cycle. Good examples are common to us all. At the extremes of the menstrual life, namely at puberty and at the menopause, irregular menstrual cycles and flows are rather common. The fourteen-year-old girl may menstruate one time and several months will pass before she sees another menstrual period. Likewise, the flow may vary from one day to ten or twelve days. The same picture is commonly seen in the menopause. These irregularities are due to the lack of ovulation or more specifically to the absence of progesterone. Progesterone, then, tends to regulate the menstrual cycle.

Another method of determination of ovulation and the most accurate of all is endometrial biopsy. This may be taken one or two days before the onset of menstruation or up to eighteen to twenty-four hours after menstrual flow begins. Usually endometrial biopsies are indicated in sterility studies and there is always a danger of interrupting a pregnancy if the biopsy is done before the onset of flow. There is quite a time problem in getting the endometrial biopsy within eighteen or at most twenty-four hours after the onset of the flow. There are various other methods for determination of ovulation. These, for the most part, are dependent upon the presence of progesterone or its metabolic products or the effect of progesterone. I refer specifically to pregnanediol which can be recovered from the urine and to the "palm leaf" or "fern" test which is made from the cervical mucus.

The next method of determination of ovulation and the one about which I wish to speak at length is the basal temperature chart. Briefly, this is a serial determination of the waking temperature. Rectal and vaginal temperatures were originally recommended, but for obvious reasons they met with objections from the patient and oral temperatures can be interpreted quite satisfactorily. Figure one shows the typical basal temperature record. You will notice the days of the cycle are given by the numbers along the top of figure one. Along the left column are the figures 97, 98, 99, representing the temperature. The line is drawn here through 98 degrees simply for quick orientation and interpretation. You will notice the first several days an x is drawn through the temperature recording to indicate that menstruation was going on at that time. About fourteen days before the onset of the flow there is a "thermal shift," giving us a diphasic curve. This, of course, is one of the best examples of my collection. These are all actual recordings taken by patients. The next slide shows one of the most difficult of my series to interpret. I have averaged up the first thirteen days' temperature reading and the last thirteen days' temperature reading, after the dip, and have placed a dot on the average reading in each case. You will notice that the first, or lower part of the diphasic curve, averages 98.1° whereas the latter part reached 98.3°, a difference of .2 degrees. This may not seem very much, but when put in graphic form, as it is here, you can very definitely determine that *something* has taken

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*Presented before the Central Medical Society, September 4, 1956.

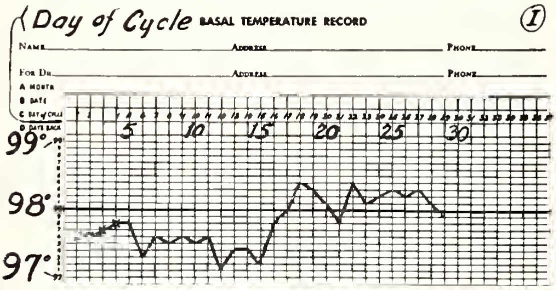


FIGURE I

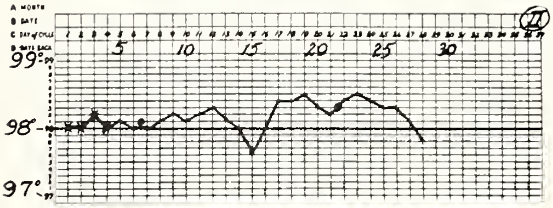


FIGURE II

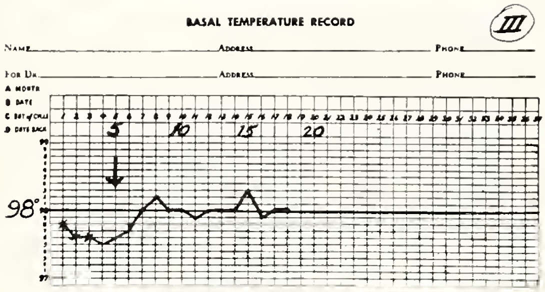
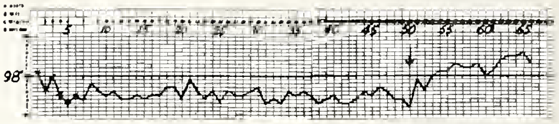


FIGURE III, a



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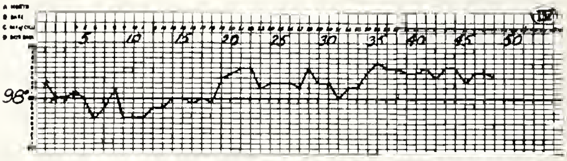


FIGURE IV

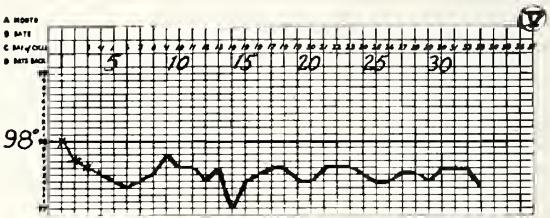
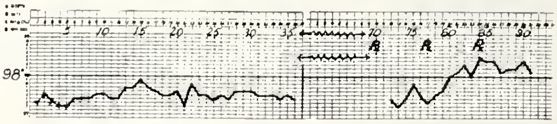


FIGURE V, a



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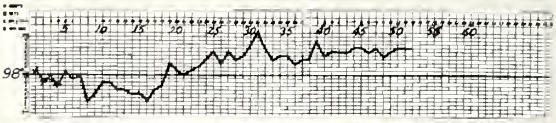

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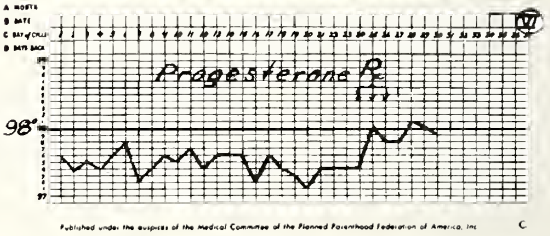
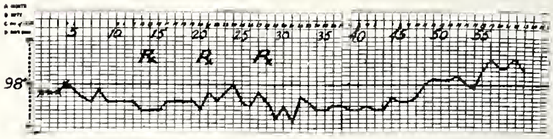


FIGURE VI, a



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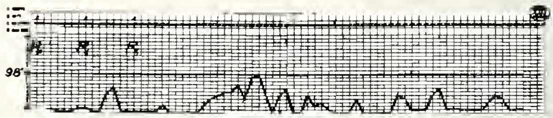

FIGURE VII

place and it is my belief that ovulation produced this change.

Figure 3 gives graphic evidence of a statement made in an earlier paragraph, namely, that ovulation usually takes place about fourteen days before the onset of menstruation, no matter how long the menstrual cycle. The first part of this represents a total cycle of eighteen days. The arrow indicates the approximate time that ovulation began and in this case thirteen days before the onset of menstruation. The lower half represents a sixty-six day cycle and again the first portion of the curve was relatively low. When ovulation took place it again occurred about fourteen days before the onset of menstruation. Figure 4 simply shows a normal pregnancy. Temperature in this case goes up and remains up three to four months. This is the easiest and most reliable pregnancy test.

Figure 5 gets back to our subject under discussion. You will notice in the first graph that menstruation lasted three days and about thirty-three days later (the second graph of figure 5) the patient menstruated again. However, there is no evidence of ovulation. Notice here, there is a skip from thirty-five to seventy days during which time the patient did not take her morning temperature. However, she became interested in x-ray treatment and received one treatment (represented by Rx) on the seventieth day, another on the seventy-seventh day and another on the eighty-fourth day. There was a prompt response. Ovulation took place about ten or eleven days after the first treatment. Parenthetically, I should add here that it is most important to ascertain that the patient is not pregnant when treatment is begun or that she does not get pregnant during the treatment. It has long been known that even this small amount of high frequency radiation will cause fetal anomalies in a very high percentage of very young embryos. The last graph of Figure 5 shows when the first attempt by the patient was made to get pregnant which was successful.

Figure 6 represents another case. You will notice here that the days of menstruation were not numbered at the top and no menstruation is shown the first few days of this chart. This is because it had been so long since this patient menstruated that she did not remember the exact date. It was somewhere in the neighborhood of four or five months. As shown on the chart, progesterone was given in doses of 50 mgms. daily for three successive days. You will notice an immediate response in the thermal shift, which is, I think, reasonable evidence that progesterone causes this elevation. This was done to make sure that this patient's endometrium was capable of responding to progesterone as well as estrogen stimulation. She promptly had withdrawal bleeding, which technically differs from menstruation. Additionally, the progesterone gave her a psychological boost, which is not without value. After this withdrawal bleeding, x-ray treatment was given as indicated on the chart and here ovulation ensued.

So that you will not think that all which glitters is gold, I will show you an outstanding failure. This patient had received progesterone and estrogen in an attempt to give her "withdrawal bleeding" but none was experienced. She was given the x-ray treatments as indicated and you will notice that there is no response. This has been about two years now and the patient still is not menstruating and almost certainly not ovulating and just as certainly will never get pregnant.

Many of you are wondering what are the genetic effects which result from this treatment. I should like it understood from the outset that I am unbiased in my opinion by any great knowledge of the facts. About twenty years ago Dr. Muller at University of Indiana won the Nobel Prize for his proof that "high energy" or "ionizing" irradiation causes mutation of genes in fruit flies and mice. It should be emphasized that this was no indication that *gross* abnormalities were expected to develop. Rather a mutation of genes is something that is carried from generation to generation and is a long-time consideration. Detrimental mutations are overwhelmingly preponderant. They usually represent some small anatomical or physiological trait which is transmitted through the generations. We know that the effects of irradiation, insofar as mutation of genes in fruit flies and mice is concerned, applies only to exposure of the gonads. Furthermore, there is no lower threshold which might not cause mutation. We know that the effects of irradiation are cumulative, permanent and transmissible from generation to generation. It has been calculated that the average man has somewhere in the neighborhood of one to two hundred mutant genes. Considering man's conduct in this world, I think this is a rather conservative figure. It has been calculated that he acquires one additional mutant gene from his environment. This may be from cosmic rays, from diagnostic and therapeutic x-rays and, more recently, from atomic bomb "fall out."

There is a wide difference of opinion concerning the chance of mutation following the usual therapeutic dose of irradiation to the ovaries to produce ovulation. Muller seems to be the most alarmed geneticist. He believes that this dose will probably add about one additional mutant gene. Sturdivant, of California Tech., at Pasadena, on the other hand, states that he believes this chance to be at least one in fifty. On the more practical side, Dr. Ira Kaplin of New York is undoubtedly the world's greatest proponent of x-ray irradiation of the ovaries. In a personal communication from him dated August 22, 1956, he gave me the following figures. He had a total of 764 women treated. He was able to carefully follow 564 of these. Three hundred and sixteen of the 564 conceived 530 times, to produce 420 children. There were seven ectopic pregnancies and two of these later bore children. There were 70 miscarriages and forty of these later bore children. Twelve patients were still pregnant. This leaves a slight unaccountable discrepancy of the 420 children. Seventeen are now married and have 30 grandchildren. Of this total number of first and second generation children there were only three gross abnormalities. This is lower than would be ordinarily expected in chance. In conclusion of Dr. Kaplin's most recent article, the *Journal of Obstetrics and Gynecology* of the British Empire, June 1956, he has this to say: "Based upon the clinical observation of more than 700 married women treated by me with x-ray therapy, I believe I may properly reiterate that the results of irradiation for fertility and sterility in human females are harmless to the treated women, their children and their children's children." Confirmatory evidence of the lack of gross abnormalities was obtained by study of the women exposed to the atomic blasts at Hiroshima and Nagasacki. Non-pregnant women who were exposed to the irradiation who later became pregnant have shown no higher incidence of arrested developments in their children than would be expected. (This is in contradistinction to those who were *pregnant* at the time of the explosion. Many of those babies *in utero* at that time received lethal doses and were aborted and most of those which received sublethal doses developed gross abnormalities, many among which were monstrosities).

We have, then, a calculated risk, as in many other fields of medicine. It is my policy to give the couple concerned a full discussion of the pros and cons of this treatment. The final decision should be theirs. It usually is hers. Perhaps you have heard: "The only way to get along with a woman is to let her *think* she is having her way. The only way to do this is to let her have it."

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. .... Cardiology
HARVEY F. GARRISON, Sr., M.D. .... Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center .... Surgery

CARDIOLOGY

THE IMPORTANCE OF A TIGHT BLOOD PRESSURE CUFF

WILLIAM F. NUESSLE, M.D.
Minneapolis, Minn.
(Taken from *American Heart Journal*, Vol. 52, No. 6, December, 1956)

The American Heart Association has recommended that when taking blood pressure that the deflated bag and cuff should be applied evenly and snugly around the arm. Too loose application of the cuff is a common error in blood pressure determination, and this is even more pronounced with the newer clip-on type of cuff. In order to determine what differences arose when the cuffs were applied loosely, Dr. Nuessle, assistant medical director for the Prudential Insurance Company of America, made blood pressure determinations on 100 individuals during examinations for employment and insurance. The pressures were obtained with a clip-on cuff applied tightly, and then redetermined with the cuff loosened so that its circumference was extended 3.1 cm.

There was a general increase in systolic and diastolic levels using the loosened cuff. Higher readings were found in 94 of the 100 cases and the average increase was 8.1 mm. of mercury, and 9.3 mm. of mercury, diastolic. This was more pronounced in persons of average or heavy build when compared with the asthenic build individual.

Review of the principles employed in the indirect measurement of blood pressure consists of balancing air pressure against the pressure of the blood in the brachial artery and then estimating the former by means of a manometer. It is known that the inflatable bag should be 20 per cent wider than the diameter of the arm or thigh on which it is to be used, narrow arm cuffs giving a false high reading, and cuffs too broad in width giving a false low reading. It is suggested that a loose cuff gives high readings because of the central ballooning of the bag, which exerts the pressure effect of a narrow cuff with the effective longitudinal axis shortened as well. This can be well shown by recording pressures during rotation of the cuff in the four quarters of one arm of an individual. Little change occurs in a small arm, but in a large arm false high levels are obtained when the bag is opposite the brachial artery. This effect can be magnified by using a loose cuff.

Comment: Certainly as a reviewer of this article, I can remember many blood pressures recorded on hospital charts by the nurses or attendants that in no way agreed with my own determination. Inspection of their method almost invariably resulted in the recognition that they were applying the cuff much too loosely. Another common error in hospital measurement by the helpers is the use of cuffs of disproportionate width. This is the use of a wide cuff on a pediatric ward when no pediatric size blood pressure cuff is available. Amost invariably extremely low readings are recorded, and in many cases no ausculatory recording at all can be ascertained. Conversely, the Riba-Rocci band, which is available in most hospitals, will almost always give a false high reading because it is too narrow when determined by the formula that states that the bag should be 20 per cent wider than the diameter of the arm or thigh on which it is to be used.

PEDIATRICS

Treatment of Whooping Cough and Its Complications with Tetracycline. K. Menzel. med. Wchnschr. 98: 1471-1475 (Oct. 26) 1956 (in German) (Munich, Germany.)

Tetracycline (achromycin) was given to 121 children with whooping cough, the majority of whom received ambulatory treatment. Fifty-eight of the children were less than two years of age, 50 were between two and five years old, and the other thirteen were over five years old. Tetracycline influenced the course of the whooping cough favorably in 98 of the 121 children, the effect being "very good" in 57 and "satisfactory" in 41. In classifying patients into groups according to the severity of the disease, it was found that the percentage of failures with tetracycline therapy was lowest in the mild cases, but the effects obtained in this group do not prove the value of any treatment, because there is always a doubt in these mild forms whether the course might perhaps have been the same without antibiotic treatment. If these mild cases are excluded it appears that treatment with tetracycline is the more indicated the more severe is the whooping cough, particularly if pulmonary complications exist.

While experiences with tetracycline revealed little new information about the use of antibiotics in whooping cough, it is emphasized that the factorable results were obtained with relatively small doses and without secondary effects. The use of tetracycline is indicated in whooping cough especially in the presence of complications and in infants.

Comment: This is an interesting article on a very troublesome and dangerous disease. Whooping cough, if entirely neglected, can develop into pneumonia, meningitis, pleurisy, and other similar diseases. I was somewhat surprised to see the authors of this article did not mention the treatment of whooping cough with anti-pertussis serum, 2½ cc. administered intramuscularly. Two or three injections ordinarily will do more good than any remedy which has previously been used.

SURGERY

TRENDS IN CANCER MANAGEMENT

During the past five years there has been an at first gradual but later rapid shift in current opinion regarding the management of malignant disease. For a long time many surgeons cited at every opportunity the familiar doctrine that the only hope for cure in cancer lay in earlier diagnosis and treatment. And yet, the success in cancer therapy was not truly materially improved by periodic mass screening of large segments of the population — whether by physical examination, bowel roentgenograms or chest roentgenograms. Possible exceptions were periodic sigmoidoscopic examinations and uterine cervical smears. Yet, it is now conceded that the major factor in tumor growth and spread is the inherent nature of the particular tumor in the particular patient; that the prognosis is dependent upon *biologic predeterminism* to a very considerable degree.

A few years ago Doctor George Crile, Jr., of the Cleveland Clinic, made statements to the general effect that even more radical surgery, rendering happiness impossible for many patients, was not to be the answer to the cancer problem. And for this he was severely criticized at the time. A scant two years later, however, many of those who criticized his candid appraisal of the situation had arrived at a similar conclusion. It is now a fact that the scalpel has had a fair trial: *it is still the best single weapon against most cancer* but it is only one weapon, and its limitations have been pretty well defined. It is not the final answer of itself, nor is irradiation.

Why are surgery and irradiation not curative in the majority of cases? They are not curative because most of the time the tumor has spread beyond the local lesion, of course; that is, *metastasis* has occurred. And thus the problem of metastasis becomes a major one, perhaps *the* major one, since its presence most commonly precludes successful treatment.

The Control of Metastasis and Metastases

To eradicate metastases, therapy must be at hand which can seek them out wherever they are in the body, such as it was hoped radioiodine would do effectively in thyroid cancer. Unfortunately, even the avidity of thyroid tissue for radioiodine has not resulted in a significant number of cures with this isotope, and few other isotopes have been as helpful. However, there are now available a number of chemical compounds which are fairly effective against some tumors, and the United States Public Health Service has undertaken a truly enormous coordinated survey of drugs which may prove to have an effect upon metastases. Numerous clinical groups have been organized across the country to test each promising new drug on patients as rapidly as possible, under carefully controlled conditions. A further extension of this is to give the drug immediately after operation to reduce the incidence of metastatic "takes" in the liver and elsewhere; for there is experimental evidence that cancer cells in the blood stream are more readily killed before they have gained a new foothold with blood supply than afterward. And, of course, cancer cells are frequently obtained from peripheral blood, not to mention the venous drainage of the tumor itself. Manipulation of a tumor has been shown to increase the number of such embolic tumor cells in the blood stream.

A Cooperative Effort

Finally, perhaps the most favorable development of all has been the acknowledgement by individual specialists that no single discipline or combination of disciplines has been able to claim effective control of most cancers. Unbecoming overconfidence has given way to humility, and humility to a mutual desire to join forces to improve results. Under these favorable circumstances the team of surgery-irradiation-chemotherapy may make true progress in the years just ahead.

J. D. H.

AUTOMOBILE SHOULDER

AND WAIST STRAPS

hold you safely in your seat in crash, add to your comfort in ordinary driving.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

GETTING ACQUAINTED

This is the sixth installment of the roster of MAGP members. (Members in District I through V were listed previously.)

DISTRICT VI

Dr. Robert J. Moorhead, Yazoo City, Director; Dr. Edward Corbin, Yazoo City; Dr. Samuel I. Feurst, Vicksburg; Dr. Toxey E. Hall, Belzoni; Dr. Florian Emile Jabour, Vicksburg; Dr. Walter E. Johnston, Vicksburg; Dr. A. P. Messina, Vicksburg; Dr. A. J. Messina, Vicksburg; Dr. W. C. Pool, Cary.

HOME STUDY COURSES

A brand new development in postgraduate education is about to be launched. The College of Medical Evangelists has produced a series of home study courses specifically for the general practitioner. Furthermore, they are audio-visual—this simply means that tape recordings are synchronized with film strips to add visual instruction to the lectures.

These courses have been approved by the Academy's Commission of Education for Category I (formal) credit. In other words, you can now attend school right in your own office or living room.

The first course will be ready for distribution early this year. Anyone interested may obtain further information by writing Paul D. Foster, M.D., Chairman, Committee on Audio-Visual Courses, CME School of Medicine, 1720 Brooklyn Avenue, Los Angeles 33, California.

CANCER SOCIETY SEMINARS

The Mississippi Division of the American Cancer society conducted a series of seminars in the state during the month of January. The MAGP co-sponsored these meetings and members obtained four hours' credit of Category I (formal) for

CARDIOVASCULAR SEMINAR

The Annual Cardiovascular Seminar of the Mississippi Heart Association will be held at the University Medical Center in Jackson on April 1-5, 1957. The School of Medicine is co-sponsoring the seminar. Outstanding physicians in the fields of cardiology, surgery, pediatrics, physiology and radiology will conduct the week-long postgraduate course. Heading the list is Dr. André Cownand, Nobel prize winner and associate professor of medicine at Columbia University.

Academy members may obtain up to 30 hours of Category I (formal) credit for attending this meeting.

DUES AND STUDY REPORTS

This is the month for Academy members to do something about maintaining their standing in the Academy. Dues for 1957 are payable NOW — $30.00 for active members and $15.00 for associate members. If you haven't already sent in your 1956 membership card with your postgraduate study record *filled-in* (on the back and inside of the card), now is the time to do it. Send to AAGP Headquarters, Volker Boulevard at Brookside, Kansas City 12, Missouri.

AAGP ASSEMBLY

The Time: March 25-28, 1957

The Place: St. Louis, Missouri

The Program: Excellent!

The December issue of GP *Journal* carries the assembly story (page 183). Read about it and you won't want to miss it. Hotel reservation forms are on page 179.

An outstanding scientific program has been planned, one that will be well worth hearing. Furthermore, 15 hours of Category I (formal) credit will be awarded for attendance at this meeting. Fill out the hotel reservation form in the GP Journal and mail it in NOW!

PHYSICIANS' LIABILITY INSURANCE

The Academy now offers for the first time a group policy for professional liability (mal practice) insurance coverage. The advantages of a group policy are many. Besides the added protection of our group plan (called the plus plan), the Academy's Committee on Insurance stands ready to advise and assist any member-policy holder who seeks its aid.

Perhaps the best feature of the *plus plan* is the prospect of lower rates, which will be put into effect when experience justifies it. In case you have mislaid the explanatory letter from the Insurance Committee Chairman, Norman Coulter, inquiries and application should be sent to: THE PLUS PLAN, Division of R. B. Jones and Sons, Inc., 301 W. 11th St., Kansas City, Missouri.

PLAN FOR FINANCIAL ASSISTANCE

Norman H. Davis, Director,
Medical Program, Sears-Roebuck Foundation

The quality of physicians and the medical care of the nation are excellent. However, specialization in medicine has dictated that doctors settle in heavily populated areas as well as areas educated to specialized medicine. The combination of specialization and a medically educated population is not solving the medical problem in many areas of the country.

The shortage problem will be with us as long as there is a problem of medical distribution. It will also be with us as long as patients find themselves waiting—as long as the reception room is full, and as long as patients have trouble getting a doctor to visit them at night. Even if many such calls are unnecessary, there is nothing that seems more necessary to the one calling. It would appear that this cry of "shortage" shall continue until the problem of medical distribution is solved or improved, despite the fact that we have more and better trained physicians than ever before.

The following article we are sure many young doctors will read with a keen interest. We asked Mr. Norman H. Davis, Director of the Medical Program for The Sears-Roebuck Foundation, for the article. He has given this information in a very concise and understanding statement. We would like to commend this great company for its interest in the young doctors in our state and nation and its willingness to aid them in their efforts to serve the people out in the small-town and rural community. The very best way to help a person is to help him help himself. We would naturally expect a company that is able to accumulate funds and at the same time render a service to the people would be well qualified to place money where it would count for good in the social and economic life of our nation. We want to thank Mr. Davis very sincerely for preparing this article for the *Mississippi Doctor*. We met Mr. Davis at the Southern Medical in Washington. He is a most versatile man, a delightful person to know, and he is most sincere in his purpose. —Ed.

SEARS-ROEBUCK PLAN

Physicians graduating from internship or resident training face formidable economic obstacles when they enter private practice. They are about at the end of their fiscal rope. Yet to enter into private practice requires costly modern diagnostic equipment and office space adequate for efficient practice, as well as trained help. The day of practicing from the "little black bag" is over. Today, our future physicians are trained with the best of modern diagnostic equipment. After being trained with the best, to go out into practice without sufficient equipment is similar to sending a craftsman out to do a job without his tools. This would not be a sensible approach. Yet to have such equipment costs money. Unfortunately, one does not develop a practice overnight and while one is developing the practice, the fixed costs continue. These financial problems are preventing many capable physicians from entering private practice.

In order to bring the benefits of medical science so evident in our institutions to the field of private practice, the Sears-Roebuck Foundation has a two-fold program of financial aid to physicians. It is the Foundation's hope to provide assistance to physicians that will enable them to enter private practice years before they normally could. The second approach is to aid those established physicians in improving their existing medical facilities. However, the Foundation further recognized that such a program must be based on the need of the community for physicians as well as the financial need of the physician. Since there is an abundance of doctors in our cities and a shortage in our small towns, rural localities, and suburban areas, this program aims at improving medical distribution in these localities.

In 1955 the Foundation approached and obtained the cooperation and advice of the American Medical Association in developing this program. The trustees of the AMA appointed a seventeen-man Medical Advisory Board to advise the Foundation on medical matters. As a result of this cooperation, the Foundation makes an annual grant of $125,000 to the AMA which forms the nucleus of a revolving fund. The Foundation will make such grants for 10 years, provided there is a need.

So that the revolving fund can expand, it was felt that aid should be in the form of loans instead of grants or interest-free loans. Grants do not develop a feeling of fiscal responsibility so essential in a free society. The interest-free loan, while eventually being paid back, would take the maximum time and would not provide the revolving fund with additional funds for expansion beyond the Sears grants. The wisdom of the interest feature can be seen in the future growth potential of the fund. In 25 years, the Foundation grant to the fund of $1,250,000 will be worth approximately $9,000,000 which will provide a tremendous impact in the improvement of medical distribution and facilities. Thus loans are 10-year unsecured, supplemental loans ranging from zero to 6 per cent, depending on the rapidity of repayment. These loans are designed only to make up the difference of what can be obtained through normal lending agencies, what the physician has, and what is necessary to enable the physician to complete his plans.

Physicians interested in entering private practice and those in private practice that need supplemental funds for building, remodeling, purchasing equipment, or funds for costs normally associated with opening a practice should look into the possibility of obtaining a Sears-Roebuck Foundation loan, particularly if they plan to establish their practice in small towns, suburban areas and rural localities. Applications can be obtained from the state medical society.

In the short time this plan has been in effect, the Foundation has made $261,000 in loans. Dr. J. P. Culpepper, Hattiesburg, Mississippi, southern regional representative of the Sears Medical Advisory Board, informs the *Mississippi Doctor* that two Mississippi physicians received loans from the Foundation this month. This represents the first Sears loans to come to Mississippi.

According to Dr. Culpepper, applications are now being received for consideration in the first half of 1957. The deadline for applying is April 1st with final decision being made June 15. Graduating interns and residents will find this an ideal time to apply since the money would be available upon graduation if they are chosen by the Advisory Board. Dr. Culpepper advises those who apply to have their plans in concrete shape and submit them as soon as possible so the Medical Advisory Board can give them proper consideration.

MEDICAL PROGRAM COMBINES WITH SOUTH DAKOTA PHEASANT HUNTING

The Hunters' Fall Medical Meeting sponsored by the South Dakota State Medical Association will be held at Mitchell, South Dakota, during the first five days of pheasant hunting season in October, 1957.

The program is set up for our-of-state doctors and will feature morning scientific sessions, afternoon hunting, and evening scientific and social sessions.

The registration fee is set at $100.00 which will cover the out-of-state hunters' license, hunting guides, reserved hunting areas, several social events, and the scientific program. Motel and hotel space has been reserved, but registration is limited to the available housing.

The affair is not stag, but wives who hunt must pay the full registration fee and those not hunting, three-fourths of it.

For details and reservations write to Mr. John C. Foster, Executive Secretary, South Dakota Medical Association, 300 First National Bank Bldg., Sioux Falls, South Dakota.

REGIONAL MEETING OF AC OF G

A regional meeting of the Central Region of the American College of Gastroenterology will be held in Grand Rapids, Mich., Sunday afternoon, March 17, 1957, at the Hotel Pantlind, commencing at 1:45 p.m.

Participating in the program will be Joseph B. Kirsner, M.D., Chicago, Ill.; William Fuller, M.D., Grand Rapids, Mich.; Joseph Shaiken, M.D., F.A.C.G., Milwaukee, Wisc.; C. Wilmer Wirts, M.D., F.A.C.G., Philadelphia, Pa.; Garnet Ault, M.D., Washington, D. C.; Don W. McLean, M.D., Arbor, Mich.; Fred Hodges, M.D., Ann Arbor, Mich., and C. Allen Payne, M.D., Grand Rapids, Mich.

Members of the medical profession are cordially invited to attend. A copy of the program may be obtained from the Secretary, American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

. . . but, above all, he must never fail to give to his patients the finest possible medical service, keeping abreast of medical progress by reading, attendance at medical meetings, and taking frequent postgraduate courses. He must be a tireless worker and improve his public relations by spending adequate time with his patients, answering urgent calls promptly, day or night, and by not keeping his patients waiting. This must all most certainly be done for what has been vaguely defined as a reasonable fee. —Dr. P. H. Woutat

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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Address all material for publication to W. H. Anderson, M.D., 104 Hospitality Street, Booneville, Mississippi.

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THE MID-SOUTH

The Mid-South Postgraduate Medical Assembly holds its annual session on February 12-15 at the Peabody Hotel, Memphis, Tennessee. Dr. L. W. Nabers of Morristown, Tennessee, is the president. Dr. C. W. Patterson of Rosedale, Mississippi, is president-elect. Vice-presidents are Drs. William G. Stephenson, Chattanooga, Tennessee; Max Roy, Forrest City, Arkansas, and R. S. Moorehead, Yazoo City, Mississippi. Dr. Thurman Crawford, Memphis, is secretary-treasurer.

Between fifteen and twenty of the most outstanding men in the fields of medicine and surgery are on the program. Here in four days and nights, the general practitioner can get a fine review of the latest and the best in medicine. Not only this, he is in a city which has the largest medical school in the nation, with a fine medical atmosphere, a royal professional fellowship, an unexcelled hotel service, obliging exhibitors, and a general feeling of hospitality. Meet us at the Peabody for the Mid-South, February 12-15.

From up in Chattanooga, Tennessee, we have this year a distinguished vice-president, Dr. W. G. Stephenson. He has been the big wheel in the Tennessee Valley Assembly now for the last few years. Last October in connection with the Golden Anniversary of the Southern Medical Association he put on one of the very best of its kind we have had. He knows how to plan and execute a medical meeting in a fine way. We hope he may bring a number of his fine east Tennessee friends to Memphis this month.

President-elect C. W. Patterson of Rosedale, always at the meetings, will be boosting the Mid-South in a big way as usual. The Delta has always been strong for the Mid-South. We hope the attendance will really be noteworthy for this meeting.

EXHIBITORS

Be sure to give due consideration to our exhibitors. They have done much to help build and maintain the Mid-South. They are friends to this assembly, they value it and they support it. They are friends to the medical profession and in turn to the people the doctors serve. Their contribution to the people by their research and untiring and efficient service should be recognized.

MEMPHIS ESSAYISTS

In the February issue each year we bring you chiefly papers from the doctors of Memphis. We thank them for their fine response. The doctors of this great medical center have been valued contributors to the *Mississippi Doctor* across the years and we are proud of their progressiveness, their skill and talent.

ELVIS SYNDROME

We are sure the older practitioners of the South will recall the "Ford car syndrome," the "Ford back," that we saw and attempted to treat for back pain. After the Ford was so greatly improved and is now in the luxury category of travel, we no longer hear of the "Ford back."

But we have noted a new syndrome, and the symptoms seem to be rather classical. It is the Elvis syndrome. A lady recently dropped into our office to report on a daughter on whom we had operated a few months ago, and remarked that a younger daughter was suffering with some very severe pains across her back, in her hips and legs. "Do you think it might be rheumatism? Should she have a prescription to help relieve the pains?" She replied, "No, it is not rheumatism and I am not paying for any medicine for her. I know the cause of her pains and she does too. She can keep from having them." When questioned further she replied, "It is her prissy, twisty, frisky maneuvers and efforts to imitate and keep up with Elvis over the television. And if she insists on bringing them on, let her suffer them." Later we decided that the Elvis syndrome might not be confined to the teenage girls; we suspected a lady of sixty.

SYMPATHY

We offer our sympathy to Dr. J. P. Culpepper, Jr., in the loss of his mother on January 23. She was quite elderly and had been ill a long time.

Dr. Culpepper is now president of the Southern Medical Association, one of the greatest medical organizations in the world. It is composed of sixteen states and the District of Columbia.

BOOKS

You will note in this issue the ad of Dr. J. A. Majors Book Company. He details the Saunders Books in the Southern states. But he can and will secure almost any book for you. *Current Therapy* is one of the most practical and helpful books for the practitioner that is published. It comes out yearly. You will most likely want to order your new copy at the Mid-South in Memphis this month. The Majors Book Company is also handling *The Soul of the Surgeon,* the little masterpiece by Dr. Rudolph Matas.

Dr. J. A. Majors is a native of Booneville, Mississippi. He is about 85 now, but he keeps abreast of the times, and looks optimistically to the future. He is known as a delightful friend to thousands of doctors.

MENTAL HEALTH FOCUS

The public as well as the medical profession has grown more mindful of the terrible toll that heart disease is demanding. It is fine that we are becoming heart conscious. Because of more prompt treatment of influenza, tonsillitis, and other infectious diseases, we can foresee a reduction in deaths from heart disease. Likewise, the medical profession and the laity are turning their attention to mental health, treatment, prevention, and rehabilitation.

Senator Hayden Campbell of Jackson is state chairman for the mental health this year. His work in this important field will be active and persistent. "More than half the hospital beds in Mississippi are occupied by mental patients," states Senator Campbell, "while thousands of others who need psychiatric treatment or help can not get it." Senator Campbell was one who was active in initiating and so ably supporting the campaign for the four-year medical school. Our medical school can now be a great asset in aiding the mental health program. Our hospital at Whitfield for the mentally sick is rendering a great service to our state. The cooperative efforts of our four-year medical school and the hospital can do much toward the prevention as well as diagnosing and treating mental illness. They can help add to the volume and the vigor of mental health. We are sure the efforts of Senator Hayden Campbell and his staff will advance lay education and in time pave the way for an effective grassroots mental health program over the state.

MID-SOUTH PAST-PRESIDENTS

The following is a list of the living past-presidents of the Mid-South Postgraduate Medical Assembly. In point of service Dr. A. G. Hudson of Memphis is the oldest. He knows more about the history of the organization than any other man and he loves and attends the annual meetings. The past-presidents have a dinner on one night at the Mid-South, usually Wednesday evening.

Hoyt Allen, Little Rock, Arkansas; W. H. Anderson, Booneville, Mississippi; John G. Archer, Greenville, Mississippi; J. L. Dunavant, Ripley, Tennessee; A. G. Hudson, Memphis, Tennessee; F. L. Husbands, Blytheville, Arkansas; H. Fay H. Jones, Little Rock, Arkansas; L. W. Long, Jackson, Mississippi; L. H. McDaniels, Tyronza, Arkansas; L. S. Nease, Newport, Tennessee; V. B. Philpot, Memphis, Tennessee; Julian Price, Dyersburg, Tennessee; H. T. Smith, McGehee, Arkansas; H. King Wade, Hot Springs, Arkansas; R. B. Caldwell, Baldwyn, Mississippi; Joe Verser, Harrisburg, Arkansas.

News and Comment

Dr. Knight

DR. KNIGHT HONORED FOR QUARTER CENTURY OF SERVICE

An award for 25 years of public health service in Mississippi was presented to Norris C. Knight, M.D., at the annual meeting of the Mississippi Public Health Association in Jackson, December 5-7. Dr. Knight is medical director of School Health Service and director of Division of Health Education, Mississippi State Board of Health.

A graduate of the University of Mississippi with the B. S. degree in 1928 and the M. D. degree from the University of Louisville in 1930, upon receiving the master's in public health from Johns Hopkins in 1934, Dr. Knight entered public health service in his native state. After serving as health officer in Coahoma, Lauderdale and Washington counties, in 1946 he was called to the Central Office of the State Board of Health to the dual position he now holds.

Dr. Knight is a member of the Central Medical Society of the Mississippi State Medical Association, American Medical Association; Fellow, American Public Health Association; Diplomate, American Board of Preventive Medicine. He served as State Medical Officer for Civil Air Patrol, 1940-45; was awarded the Selective Service Medal, in 1944, for professional service; and for three consecutive years, beginning 1941, was the recipient of an award from U. S. Chamber of Commerce for outstanding Public Health Administration. He has published numerous papers in medical and professional journals.

INTERIM MEETING

The fifth annual interim meeting of District VII of the American College of Obstetricians and Gynecologists will be held at the new Statler-Hilton Hotel, Dallas, Texas, April 12-13, 1957.

A two-day program has been planned, consisting of scientific papers, unusual case reports, diagnostic and treatment clinics and a king-size round table.

The College banquet, with entertainment to follow, will be held on Friday evening, April 12.

AAGP MEETS

The Ninth Annual Assembly of the AAGP meets March 25-28 in St. Louis. This is a golden opportunity for Mississippi physicians to attend the largest and finest meeting for family doctors in the country. Last year more than 7,000 people registered for the Assembly in Washington, D. C., and an even larger crowd is expected this year.

MEDICAL NEWS

Cardiac Surgical Program—National Jewish Hospital at Denver, a free, non-sectarian institution, is expanding its facilities for cardiovascular patients with lesions amenable to surgical intervention. Only patients unable to pay for private care are eligible for admission. Since the hospital has a complete cardio-pulmonary physiology laboratory, definitive diagnosis by the referring physician is not necessary. Inquiries concerning admission should be directed to Miss Grace Grossmann, Director of Social Service and Rehabilitation, National Jewish Hospital, 3800 East Colfax Avenue, Denver 6, Colorado.

THESE PAPERS TO COME

If you wish to have access to the papers presented at this meeting of the Mid-South Postgraduate Medical Assembly, be sure to leave your subscription at the registration desk.

ANNOUNCEMENTS

The Posey-Stephenson Clinic, internal medicine and gastroenterology, announce the association of F. Earl Fyke, Jr., M.D., internal medicine and cardiology, 746 Manship Street, Jackson, Miss.

YOUNG SURGEON with four years of special training in general surgery, wishes location in city of 10,000 or more population, to engage in general surgery. Write Dept. 8, the *Mississippi Doctor*, Booneville, Miss. (PA 8-4822)

DEATHS

DR. T. R. MONTGOMERY

Dr. Thaddeus Robert Montgomery, Memphis x-ray specialist and former newspaperman, died at the Baptist Hospital in Memphis, where he had been a patient for a short time. He was 77.

Dr. Montgomery was graduated from Memphis Hospital Medical College in 1904. After practicing 15 years at Mattson and Deeson, Miss., he came to Memphis and began a two-year term as the University of Tennessee School of Medicine's first roentgenology instructor. He had practiced in Memphis since, although he had been in semi-retirement the past 10 years.

Born in Sulphur Springs, Miss., he edited the Attala Democrat, a weekly newspaper at Kosciusko, Miss., at the age of 20. Later he bought another weekly, Southern Farm Gazette at Starkville, Miss., selling it when he entered medical school.

Active in Kosciusko civic and political affairs, he was an organizer of the Chamber of Commerce there in 1901. He was Kosciusko city treasurer at 21, the youngest office holder in the city's history.

He was a Master Mason and a Presbyterian.

He leaves his wife, Mrs. Leone Haskin Montgomery; a son, Robert C. Montgomery of Como, Miss.; a daughter, Mrs. Mary M. Powell of Memphis; two sisters, Mrs. Mary Blaine of Tupelo, Miss., and Mrs. Nannie Jones of Greenwood, Miss.; and four grandchildren, William Montgomery, Edward Montgomery, James Montgomery, and Mary Montgomery, all of Como.

DR. FRED P. SHELBY

Dr. Fred Poitevent Shelby, well-known physician and planter, was buried in the Greenville cemetery after services January 3 in Shelby.

The services were conducted at the home of Dr. Shelby's brother, George B. Shelby, by the Rev. T. S. Daniel and the Rev. James Elliot.

Dr. Shelby died at Baptist Hospital in Memphis after a long illness. He was 80.

Born at Grenada, Dr. Shelby moved to Shelby when he was a small boy. The town was named for his father, George B. Shelby, and a cousin.

For many years, Dr. Shelby practiced medicine but in later years he devoted all his time to planting interests. He attended the University of Mississippi and Vanderbilt and was a graduate of the Tulane University of Medicine. He was a 32nd Degree Mason, a Shriner and a Methodist.

He leaves a stepson, Shelby Edwards of Greenville.

DR. P. M. SMITH

Dr. Phillip Marvin Smith, prominent Tchula physician, died suddenly Christmas Eve at 5:30 p.m. in Tchula.

A former resident of Midway, Dr. Smith was born Aug. 7, 1888, the son of the late R. L. and Sallie Watson Smith. He had made his home in Tchula for the last 30 years.

He is survived by his wife, the former Irene Mauck of Yazoo City, and his son, P. M. Smith, Jr., three grandchildren and one step-child, all of Tchula.

His brother, H. G. Smith of Greenwood, and Lamar Smith of Benton, and his sisters, Mrs. Walter Rainer of Belzoni, Mrs. H. A. Moorheda of Sidon and Mrs. Edward Zieglar of Pickens, also survive.

Dr. Smith received his medical education at Memphis Hospital Medical College, Memphis, Tenn., and had resided most of his life in Sunflower County.

DR. JOHN T. SENTER

Dr. John T. Senter, who had practiced medicine in Fulton nearly half a century, died December 22 at his home.

Dr. Senter, who was 79, had suffered a stroke three years ago and retired from active practice.

Recipient of the Itawamba County Distinguished Citizenship Award in 1947, the physician was a civic leader and friend of the needy.

He served two separate terms as county health officer, the first from 1912 to 1922 and the second from 1936 to 1947.

Dr. Senter was born about five miles north of Fulton. He attended the University of Nashville (now a part of the University of Tennessee) and received his medical degree from the Louisville Medical College (now the University of Kentucky).

He began practicing in 1905 as an associate with Dr. A. Copeland, and during the first two years divided his time between patients and school work.

He married Miss Carrie Lee Sandlin in 1907, the same year he received his degree. She was killed in an automobile accident in 1941.

During his long career as a medical practitioner, Dr. Senter once estimated that he had delivered more than 1,500 babies. He delivered all 19 in the family of the late Mr. and Mrs. Clem Moore of Fulton.

Dr. Senter always placed service to his fellowman before his fees, often refusing pay for his calls when he thought the patient needed the money worse than he did.

Even after he became 70 years of age, the doctor always answered emergency calls at any time of the night.

He was a firm believer in adequate schools, and was a leader in the effort to establish the Agricultural High School here.

He held membership in the Northeast Mississippi Medical Society, the Mississippi and the American Medical associations. He was a member of the East Fulton Baptist Church.

He leaves three sons, Lyonel Senter of Aberdeen, Grayden Senter and Frank Senter of Fulton; two brothers, Dr. R. L. Senter, a dentist, and Robert F. Senter, all of Fulton; two sisters, Mrs. T. W. Haddon of Saltillo and Mrs. A. T. Cleveland of Fulton, and several grandchildren.

QUIET, PLEASE

(Or, Should I Stuff Cotton in My Ears?)

I'd like to hear a humming sneeze;
Listen to the whisper of two leaves of grass.
Hear stars twinkle at each other as they pass;
I want to hear a beetle fiddle his feelers together,
And hear a mocking-bird's beak as he zips his
feather;

I'd like to hear a pine needle as it falls,
Listen in on an ant's long distance calls;
Hear the music of planets on their round—
As a matter of fact, I don't want to hear any sound!

—Jo Richardson

Woman's Auxiliary

PRESIDENT'S MESSAGE

Dear Auxiliary Members and Friends,

At the new year's beginning, I want to congratulate each Auxiliary on the many accomplishments and the interest that is being taken in Auxiliary work. I have seen the evidences of this in my visits with Laurel-Hattiesburg units, Delta Medical, Central, Coast Counties, East Mississippi, Columbus unit, Northeast Mississippi, and North Central Auxiliaries. I thoroughly enjoyed the lovely hospitality extended to me at each meeting.

Our National President, Mrs. Robert Flanders, has chosen as our theme for the year, "Health Is Our Greatest Heritage." Through the projects on our program we must aim to preserve this heritage by giving constructive plans for better health and living. This year we have a new special committee, "Safety-Traffic and Home." What could be more in keeping with the needs of today? We are accenting safety consoiousness on the highways and the use of safety devices on automobiles. The Safety chairman, Mrs. Chester McLarty of Oxford, urges each Auxiliary to include a safety project in this year's program.

The Auxiliary baby sitter training program called "Gems" (good emergency mothers) is also being stressed. Nurse Recruitment has been changed to Recruitment as we want young people to study other fields allied to medicine—medical technology, medical social science, physical and occupational therapy.

Today's Health is excellent reading. Each year we move a little closer to our quota. It takes just one subscription per member to do the trick—price $1.50. Columbus, Hattiesburg, and North Central auxiliaries are 100 per cent in *Today's Health* subscriptions. Let's make 100 per cent for the state our goal!

I wish for each of you continued success in your work.

Sincerely, your president,
Carolyn M. Rogers

Mrs. George Turner, former national president of the auxiliary, once said, "Every member has numerous demands upon her time, but it is reasonable to expect her to give some of her energy and effort to the auxiliary to her husband's profession." Every wife should contribute to the efforts of this organization. All of us live in areas where there is an organized auxiliary. Let us support it with our interest. Every auxiliary project is worthy of our support — nurse recruitment, A.M.E.F., *Today's Health*, mental health, safety — any or all make our membership in auxiliary worth while.

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The Funny Things We Do*

ALTON GOLDBLOOM, M.D.
Montreal, Canada

It is now more than forty years since I began my interest in pediatrics. When in 1917 I was appointed to the house staff of the Babies' Hospital in New York, where the great Luther Emmett Holt was the chief, I considered myself one of the most fortunate young men in America, and from the standpoint of pediatrics perhaps I was, for no posts in pediatrics were more eagerly sought after than the few that Holt had to offer. In those days, when pediatrics was just beginning to become a bit more dynamic and less static, the "cult of the old man," that is, the almost uncritical, purblind adherence to the teachings, practices and theories of one's elders was more the rule than the exception.

In those days and ever since I was given to a critical evaluation of the things that were done and the thoughts that were thought; and having been endowed perhaps with a modicum of a sense of humour, I have been able to see that much that was funny in what we then did and thought, and I hope can still see much that is funny in what we still do and think. It is probably a healthy attitude because it connotes a sense of objectivity as well as of self-criticism.

It was the era of percentage feeding, of meticulously prepared formulae, of fear of sugar, of the dangers of overfeeding and gastric distension and of a formidable list of foods which infants could not digest or tolerate. I mention these because it is worth our while to consider to what extent some of the ideas of those days, that had and have no basis in fact, still influence our thoughts and actions today.

At one time or another, the fats, the proteins, and the sugars each in its turn bore the brunt of blame for upsetting infant digestions. Older pediatricians will remember, I hope with some amusement, the raging controversies between the high fat feeders and the low fat feeders, between the top milk users, the calorie boys, and the percentage addicts. The supposed intolerance of infants to butterfat led to Gerstenberger's fantastic juggling with mixtures of animal and vegetable fat in order to imitate as closely as possible the same proportions of saturated and and unsaturated fatty acids, the same congealing and melting points and the same iodine number as in human milk fat. All this was done on the unproved assumption that infants did not digest butterfat because of its dissimilarity to human milk fat. What Gerstenberger did achieve was of course a virtually germ-free mixture, which being nutritionally adequate resulted in freedom from intestinal derangements due to spoilage, yet to this day there is still a wide market for such fat-substituted mixtures although the advantage of these over-simple mixtures has long ago ceased to be either apparent or logical.

We bother very little about proteins nowadays. In my early days proteins were bad for the kidneys. Reputable physicians reduced proteins so drastically at times and substituted starchy foods to such a degree that when infants and children developed edema, it was called starch injury or Mehlnahrschaden making the culprit the thing that you gave rather than the thing you took away. That such edema was due to protein starvation became evident only during and immediately following the first World War, yet the term Mehlnahrschaden still persists in textbooks to indicate nutritional edema. The high protein diet then became the vogue for all edemas and starchy foods suddenly became indigestible. Kerley's directions for cooking cereals were either four hours in a double boiler or overnight in a fireless cooker, and obedient mothers followed these directions to the letter. Our patients with scarlet fever, however mild, were kept twenty-one days, not twenty or twenty-two, but exactly twenty-one days on milk and milk alone, so that the proteins of meats or eggs might not damage the kidneys. After the milk diet, it was white meat first, never red, and an egg every other day. How many mothers to this day still ask if a child may have two eggs a day, and how many doctors still retain a vague fear of too much protein?

This supposed indigestibility of protein was one reason why men flocked to Boston to "specialists" in pediatrics. To specialize in pediatrics for a great many in 1915 meant learning the intricacies of the preparation of top-milk mixtures, and split protein mixtures. Casein was the villain for a time, and casein must be reduced to the proportions present in human milk. If you were a high-fat feeder, you used top milk; it was necessary to know the fat content (on paper, not from analysis) of the top seven, ten and sixteen ounces of a quart of milk. The chosen quantity was diluted with water and lactose was added. This was done to reduce the content of protein down to the 1.5 per cent present in human milk leaving the fat at the high 4 per cent allegedly present in human milk. If you were a lot-fat feeder you first coagulated the milk with rennet and drained off the whey, then you made a mixture of cream, whey and lactose with water to suit your whim or your conviction. But this year of protein did not prevent Finkelstein from developing protein milk. Finkelstein taught that sugar, fermentable sugar, was the cause of diarrhoea. In those days there was no powdered protein milk to buy in a can if you were disposed to use it or were convinced of its efficacy. No, you had to make it yourself or the nurses had to make it in the milk kitchen. The reason for the use of protein milk has been all but forgotten and its therapeutic rationale is virtually unknown today when it is used empirically as a supposed remedy for diarrhoea. Finkelstein's idea, however, was first that the diarrhoea was caused by the fermentation of lactose in the intestine, and that therefore the sugar must be reduced. Then by eliminating the soluble salts of sodium and potassium, leaving a higher proportion of the insoluble salts of calcium and magnesium, that these would saponify with the higher fat content of the protein milk and make firm insoluble soaps which would give bulk to the stools. Since today our aim is the restoration and maintenance of proper fluid and mineral balance in infants with diarrhoea, we should be less interested in mechanically corking the intestines, which fortunately we failed to do when we used protein milk. Yet despite our increased knowledge, despite Gamble and Darrow and Butler, we still widely use protein milk for diarrhoea without the least inkling of why it was invented or on what irrational basis it was first used, and in spite too of what we know of the dangers of potassium depletion. We still use a food from which most of the potassium has been removed. Protein milk will cause hard marbly foul-smelling stools in any well child as indeed will the consumption of an excess of milk, particularly high-fat milk such as Jersey, but it will do little if any good and may do harm if fed to a depleted child whose peristaltic rate and disturbed digestion will not permit the supposedly desired saponification to take place. Many who firmly believed that celiac disease was caused by fat intolerance gave protein milk to these patients, impressed by the word "protein" and oblivious or ignorant of its high-fat content!

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Our present behaviour with regard to sugar in infant feeding, originated in Finkelstein's time, has many comic overtones. Despite abundant evidence to the contrary, we still fear sugar. In the beginning it was lactose which was both necessary and bad. It was necessary because it was the same in both cow's and human milk and therefore was the only sugar generally used in formulas. Cane sugar was completely tabu, so much so that the great Emmett Holt severely lectured and almost dismissed a weeping and trembling woman physician because she had dared to use cane sugar instead of lactose; she innocently and correctly believed that it made no difference and that cane sugar was much cheaper. That was rank heresy. The trouble with lactose was that it fermented and caused liquid stools and one had to be careful how much one gave the infant; one gave often so little that the infant ceased to thrive. Malt sugars and dextrin-maltose preparations were permitted because they did not ferment as quickly and because they had, of all things, a laxative action. So we took away the lactose because it fermented and caused loose stools, and gave maltose because it was laxative; we also gave it to those constipated infants who were not aware that lactose fermented in the intestines.

How these ideas have split over into present-day practice can be seen if we stop to investigate much of our present-day behaviour. In many places, an infant with diarrhoea still has the sugar removed from his diet and the fat removed from the milk, then with comic illogic he is fed sugars in water and fruit juices and intravenously. The restrictions of fat are continued so long as the diarrhoea lasts and the diarrhoea will often last so long as the milk remains skimmed, for the consistency of the stools does depend upon saponification of fat, and you cannot make soap without fat anymore than you can make bricks without straws. Yet this pseudodoxia has had a stubborn persistence. It is still a repetitive experience with me to see an infant long over the acute phase of his intestinal upset, the diarrhoea persisting and the infant kept all this time on skimmed milk and a restricted diet. Within twenty-four hours in such cases, the stools are firm again when the fat is restored and the diet liberalized. Why are we more interested in what comes out of rather than in what goes into the gastro-intestinal tract?

America is at present addicted to corn syrup. There can be no objection to this because it is a perfectly good sugar, not worse than any other, but certainly no better than mere cane sugar. Marriott started it, not because there was a scientific basis for a preference, but because he firmly held the views about sugar that I have just expressed. He began, with Howland, using cane sugar. That was at the end of the first World War when cane sugar was rationed and corn syrup was not. It is the only reason why corn syrup became popular.

Despite the fact that any sugar will do, many of us are still making our patients spend up to a dollar a pound for some pet sugars whose compositions differ hardly at all from ordinary corn syrup.

We never read labels. Despite the announced content of 800 units of vitamin D in each tin of evaporated milk, we still give another thousand units or more as vitamin drops. I should be greatly interested to know if anyone has seen rickets develop in any infant fed evaporated milk without the addition of extra vitamin D, yet how many of us are content to feed the evaporated milk and let it go at that so far as vitamin D is concerned?

Such then are some of the funny things we do in infant feeding, but they are not all. The present passion for giving semi-solids at a few weeks of age recalls the wide prohibitions of these very foods in the 1910-1920 era not only to infants but to older children as well. One remembers especially the prohibitions of eggs, meat and, of all things, bananas. Eggs were not allowed before the age of nearly a year, although a few were brave enough to permit a few grains of hard-boiled egg yolk at six or nine months of age. Meats were not allowed before about two and bananas until much older, until Haas began feeding ripe bananas to infants with celiac disease. They must be ripe enough to have converted all the deadly starch into sugar. Then one of the large fruit companies sponsored a study at McGill University to determine the digestibility of bananas in young infants, and *mirable dictu,* the obvious was proved after careful research; infants of any age could digest bananas and a new era in infant feeding began.

In looking over the old textbooks with their long lists of prohibited foods, I often wonder on what these prohibitions were based. I can come to only one conclusion; that to become an authority one must be old and to be old often means to have a feeble digestion. The reasoning in the mind of the now great authority must be: "If I cannot digest these things, how can a child? I therefore prohibit them." It is the child who can digest the foods which we, in our declining and dyspeptic years, cannot.

Much of our therapeutics of disease has had its comic aspects and is well worth a good-humored, self-critical reappraisal. Let us consider drops and irrigations for a moment. Do you remember the irrigations which we used to do not so many years ago? We irrigated the nose, the intestines, the bladder and the urethra, and we irrigated empyema cavities. We all remember infants in collapse after vigorous gastric lavage and vigorous bowel irrigations and attributed the collapse to the severity of the illness. We had no notion of the extent to which we were disturbing an already disturbed electrolyte equilibrium, but we blithely persisted in our misguided efforts, chiefly because it was the prevailing fashion, until the antibiotics came along and the biochemists taught us the extent to which our well-meant ministrations were aggravating already serious situations. We irrigated, we instilled and we painted. In my part of the world, I still have brought to me by distraught mothers, samples of green urine resulting from the still prevalent habit in some sections of painting throats with methylene blue. Most of these primitive methods have happily been abandoned, but we still use drops. We no longer instil silver salts into the urethra for gonorrhea; we well know the rapid effect of penicillin or the sulfonamides and we all agree that local treatment is no longer necessary. But if it is no longer necessary in the urethra, why in the name of good sense is it still necessary or useful in the nose? When we used oil drops in the nose for so-called lubrication, as if the nasal cavity were a rusty tube, we caused lipid pneumonia and when we used silver salts as a local antiseptic we caused argyria and now that we are using vasoconstrictors, hydrocortone and antihistamines, exactly what do we do? How many instances do we know of curing a nasal congestion, not by using these substances, but by stopping them? And here indeed is the apotheosis, the *dernier cri,* of topical applications and gargles. A sample of something new and modern, as modern as the last century, was recently left me for my approval and recommendation, unmindful of the tragic experiences with lipid pneumonia; it is a resurrection of all the discarded and discredited modalities of forgotten days and the shotgun has again come into its own. Not content with the nasal and throat sprays that contain simple vasoconstrictors, this gun contains this formidable epitome of usefulness: anise oil, pine oil, cassia oil, pyrilamine moleate, antipyrine, menthol, methyl salicylate, ethyl alcohol, methyl rosaniline chloride and glycerine—in this year of grace 1957! Then there are ear drops. We used to use carbolic and glycerine for earache, but I cannot remember an earache that was relieved by this mixture; I do remember several instances where the turgid white waterlogged ear drum was mistaken for a suppurative otitis and the ear drum needlessly incised. Glycerine drops with, of all things, antipyrine are still widely used to this date, yet exactly for what purpose, I for one, will never know. And where, too, is the logic of instilling antibiotics into the ear canal for the purpose of curing suppurative otitis media? When we have wisely abandoned the instillation of antibiotics intrathecally even in a disease so serious as tuberculous meningitis and have seen what brilliant results we can achieve by the administration of antibiotics by mouth or intramuscularly or sometimes intravenously in this and other hitherto fatal forms of meningitis, should it not strike as a somewhat comic lashing at windmills when we think we can influence the course of suppurative otitis by instilling drops, however potent, into the ear canal? Have we completely forgotten our anatomy and our pathology?

Most of us remember the short-lived but widespread vogue of inserting a bismuth suppository into the rectum to cure a sore throat. It was only the publication in the pediatric literature of several fatalities that put an end to this madness. That was only a few years ago. What a perversity of logic to use the rectum to cure the throat; how would this ingenious inventor have treated hemorrhoids?

How widespread is the use of calamine for hives, poison ivy, to "soothe" the itching in chicken pox and for a host of other skin conditions. A glance at the U.S.P. will tell us that calamine is a term once applied to crude zinc carbonate or zinc silicate, the word is a corruption of the Greek name "cadmia." Nowadays, it is nothing more than zinc oxide colored with ferric oxide, yet our prescriptions still combine calamine with zinc oxide, which makes it a combination of zinc oxide with zinc oxide. I know what we expect calamine lotion to do, but do we know if it does anything at all? Why zinc? Traditions die hard. We can at least say that so far as we are aware it does no harm but no one can honestly say exactly what good zinc does to the skin.

Boric acid is in a different situation, however. That it is quite useless I think we all will by now agree but that it is dangerous to the excoriated skin of newborn infants is not widely enough known. We all remember the days, not all so long ago, when boric acid powder in a salt shaker was part of the newborn nursery equipment of many hospitals; when the eyes and the mouth were daily swabbed with boric acid solution, the buttocks and the stump of the umbilical cord dusted with the powder, and if the infant was breast fed, the mother's nipples were "cleansed" with boric acid solution before each nursing. When some unfortunate infants developed an exfoliative dermatitis, we argued not about etiology, but about terminology. Some of us called it Leiners' disease and others Ritters' disease, but none of us called it boric acid poisoning which it really was and which I had several occasions to prove by chemical analysis of urine and spinal fluid. But boric acid is still used. Mel Boracis is still available in pharmacies for swabbing infants' mouths and the milder forms of poisoning such as some desquamation, excoriated buttocks and diarrhoea go unrecognized unless more severe symptoms supervene. Dr. Borden Veeder has pointed out that our chief source of boric acid is Death Valley, California; let us remember that. If we wish to use boric acid at all, I may tell you that it makes excellent artificial snow on Christmas trees.

The catalog of the funny things we did and still do is a long one. We do funny things perhaps because in our busy lives we do not pause a moment to consider the "raison d'etre" of our therapy. Perhaps, too, it is our passion to look for the new and consider it the best. When the Kenney treatment first swept over America, many of us disregarded or forgot the basic facts of pathology, we forgot that a dead nerve cell is dead and we permitted ourselves to be led by the nose of a climacteric virgin with a messianic complex. The public imagination was so fired at the time that hospitals were threatened with law-suits if patients were not given the full Kenney treatment. "Mais, ou sont les neiges d'antan?" — Where are the snows of yesteryear? Where indeed? Are there fewer cases of crippling because Sister Kenney passed this way?

Finally I should like to say a word about the extension of known therapeutic effects to unrelated diseases with some similar symptoms. In scurvy there is bleeding which is cured when the scurvy is cured with ascorbic acid. Therefore, for a time we gave huge doses of vitamin C to all patients in which bleeding was a symptom, even though they showed no evidence of scurvy. Perhaps some of us still do. Vitamin A deficieney causes night blindness, xerophthalmia and rough skin, cured of course by administering vitamin A. Is this a good reason for prescribing vitamin A for all eye diseases or in dangerously huge doses in all cases in which there is roughening of the skin from whatever cause? This is today being done on far too wide a scale for comfort, often by men of repute who have no inkling of the dangers involved or any knowledge of the early or late symptoms of vitamin A poisoning.

This has been a plea for a rational and critical approach to our therapeutics, for an approach tinged with a touch of healthy skepticism, for an appraisal of the claims made by enthusiastic investigators with a "pruritus scribendi," and for a little more individualism in our harassed lives. My satire and my sarcasm has been merely for emphasis and I hope that I have not given any impression of paternalism in my discourse, because not a little of my criticism has been directed not merely against our profession, but also against myself.

Medical Arts Building.

Surgical Treatment of Esophageal Disease*

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Organic diseases of the esophagus are usually easy to diagnose but are difficult to treat. Advances in surgery during the last ten to fifteen years perhaps have altered the above dictum as it relates to esophageal diverticula and esophageal hiatal hernia; however, esophagitis, cardiospasm, malignant tumors of the esophagus, atresia, and spontaneous or traumatic perforation are still major problems in therapy, even to those thoroughly familiar with the pathology and physiology of said disease.

Symptoms of esophageal disease are not specific, and therefore, every patient with complaints referable to the swallowing mechanism, the substernal area, or the epigastrium should have an esophageal roentgenogram, and most cases should have esophagoscopy. As pointed out by Clagett[1], dysphagia is a symptom which cannot be ignored and it nearly always means a well-developed organic disease.

ESOPHAGEAL DIVERTICULUM

The most common location of esophageal diverticula is at the pharyngo-esophageal junction. (Fig. 1) These diverticula are easy to diagnose and modern surgical treatment is safe. The procedure of choice is one-stage diverticulectomy. (Fig. 2) If correctly carried out, the risk is minimal and the results are very gratifying. About 20 cases of one-stage diverticulectomy have been done up to the present time by the various staff surgeons at the Baptist Memorial Hospital, Memphis, Tennessee. These cases have resulted in no mortality and a minimal morbidity[2]. Some surgeons still prefer a two-stage surgical operation, but a recent report of 339 cases by Mortensen, Clagett, Schmidt, and Gray[3] from the Mayo Clinic points out that the one-stage procedure, in well trained hands, is equally as safe as the two-stage operation.

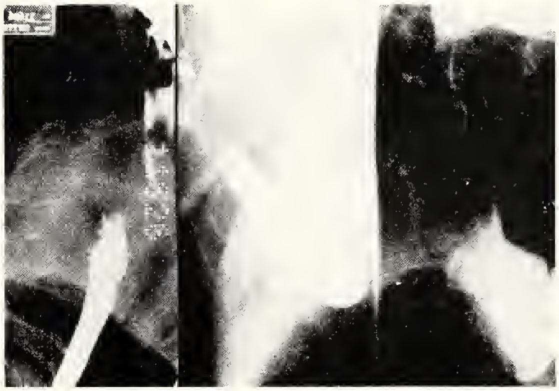

Fig. 1. Right—Lateral view of large pharyngo-esophageal diverticulum. Center—Oblique view of diverticulum. Left—Esophagus following excision of the diverticulum.

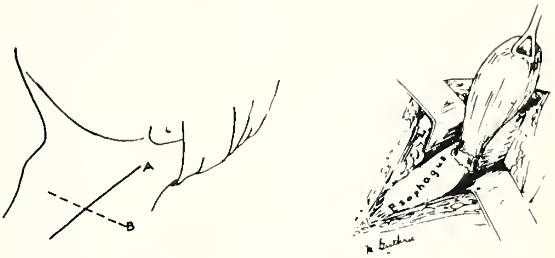

Fig. 2. Excision of pharyngo-esophageal diverticulum. This illustrates the incision and mobilization of the diverticulum.

Diverticula at the mid-esophageal area are usually asymptomatic and rarely require treatment.

Diverticula at the lower esophageal area infrequently require treatment but may be significant and require surgical intervention. Again, transthoracic one-stage diverticulectomy is the treatment of choice.

ESOPHAGEAL HIATAL HERNIA

Esophageal hiatal hernia is a more common condition than realized. Harrington has called it the "great masquerader of the upper abdomen" in that its symptoms may mimic stomach, gallbladder, heart, lung, or skeletal disease. Its symptoms are provoked by esophagitis, by pressure on adjacent structures, or occasionally by obstruction. Hiatus hernias are asymptomatic in about 25 per cent of cases. In a high percentage of symptomatic cases, however, some degree of esophagitis is present at some stage of the course of the disease. This latter fact, coupled with the safety of surgical repair and low recurrence rate, has led my associates and me to a more liberal use of surgery in the treatment of hiatus hernia. At the present time we surgically treat approximately 50 per cent of those cases with significant symptoms and with demonstrated esophagitis. It is true that medical therapy consisting of weight reduction, elevation of the head of the bed, and an ulcer type program is effective in many cases, but few people

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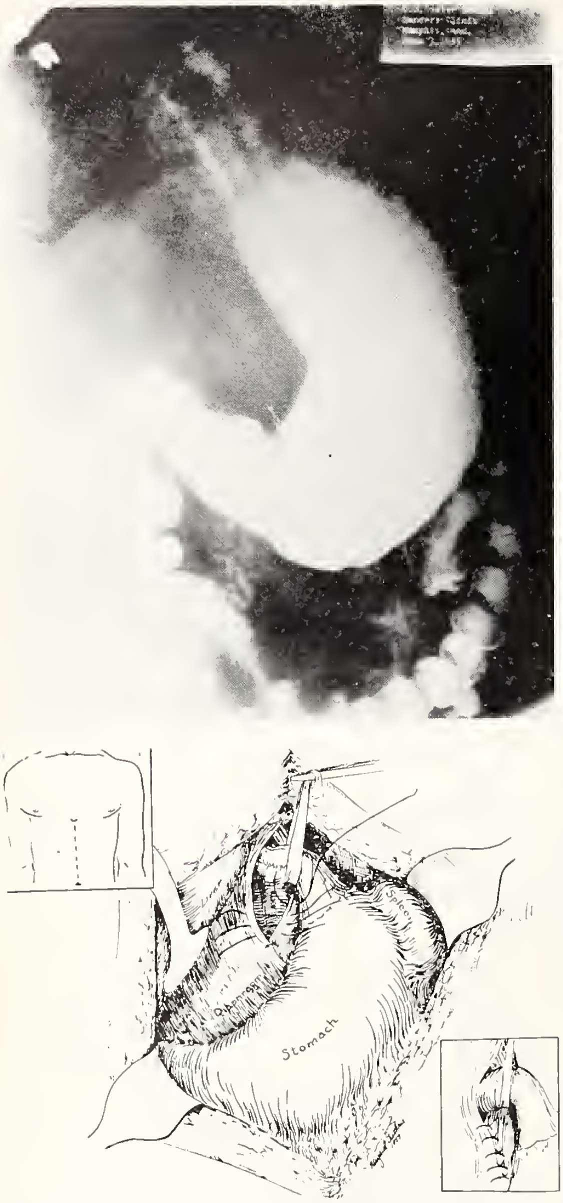

Fig. 3 (a) Large esophageal hiatal hernia of the sliding type. (b) Repair of hiatal hernia through an abdominal approach. Top insert—Incision. Bottom Insert—The hiatus closed with interrupted silk sutures.

will continue such a program throughout life and, as a result, recurrence of esophagitis and late stricture is seen all too often.

In general, the preferred surgical repair is similar to that described by Allison[5] in which the stomach is replaced in the abdomen and the crura of the hiatus are closed anatomically. This can be performed through the chest or through the abdomen, depending upon the surgeon's preference and the situation presented by the patient[6]. (Fig. 3)

The repair of an esophageal hernia usually prevents regurgitation of gastric juices into the esophagus and the esophagitis subsides.

Stricture of the esophagus is difficult to treat. Dilatation is still the method of choice, but it is ineffective in cases where esophagitis is unrelieved.

In cases of stricture with esophagitis and shortened esophagus, or in cases with esophagitis following resection of the esophago-gastric junction, a variety of surgical methods have been proposed. Skinner and Merendino[7] have advocated resection of the affected area and interposition of a section of the jejunum. Allison[8] advocated an esophagojejunostomy by-passing the stomach. Interposition of the colon has been used[9] as has interposition of the ileocecal valve[10] and interposition of the pylorus[11].

Another approach is that of Ellis[12] which is resection of the stricture with esophagogastrostomy along with resection of the antrum and vagotomy. Each of the above methods has its advocates, and at the present time one cannot state which will emerge as the treatment of choice.

CARDIOSPASM

Cardiospasm or "achalasia" of the esophagus is a diffuse narrowing of the lower end of the esophagus of non-organic nature with dilatation proximal to the obstruction, hypertrophy of the muscular wall of the esophagus, and destruction of the Auerbach plexus in the wall of the esophagus. (Fig. 4) Esophagoscopy should always be done prior to treatment of these cases to rule out carcinoma and stricture secondary to esophagitis.

Once the diagnosis is made, the choice of treatment lies between dilatation by the Plummer hydrostatic dilator, or similar dilators, and surgery. The operation of choice is the Heller procedure in which myotomy is done down to the mucosa. This procedure is similar to the Ramstedt procedure for pyloric stenosis. Hydrostatic dilatation will produce satisfactory results in 70 per cent of cases after the first treatment. In an additional 20 per cent of patients, satisfactory results can be obtained by further dilatations.

The Heller operation produces satisfactory results in about 90 per cent of cases. A small number of cases will develop esophagitis after the Heller operation, and recurrence of symptoms occasionally occurs. Many surgeons, at present, do a Heller procedure as the primary therapy believing that it is more certain and more accurate than other methods.

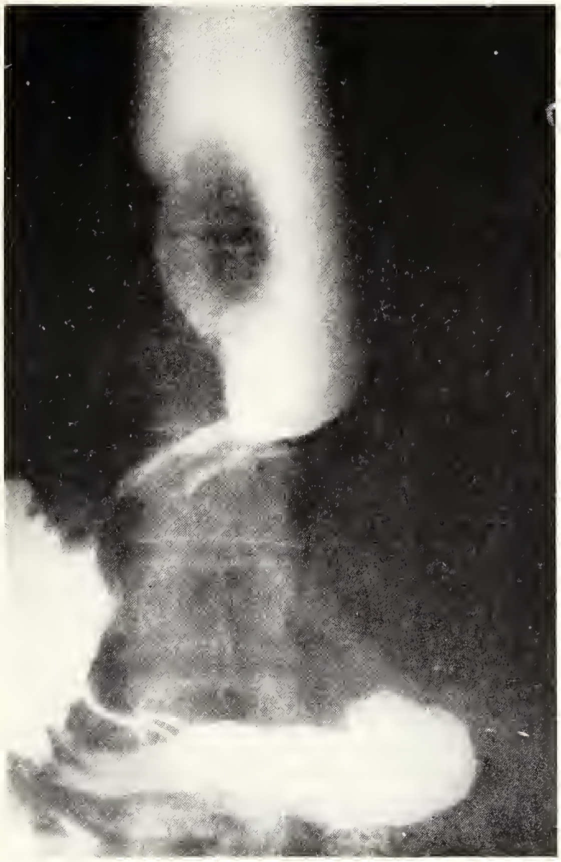

Fig. 4. Cardiospasm. The patient had a Beller operation with relief of symptoms.

Medical therapy of cardiospasm has, in general, been unsatisfactory.

SPONTANEOUS RUPTURE AND PERFORATION

Rupture or perforation of the esophagus, whether spontaneous or following trauma, is a surgical emergency. The clinical symptoms and signs are usually those of mediastinitis and pleuritis with varying degrees of fever, pain, and shock. If perforation is located in the neck, then cervical mediastinotomy is indicated with suture of the perforation, if possible, and drainage always. If perforation occurs in the thoracic esophagus, immediate thoracotomy is indicated, unless of course, the patient is in shock or other conditions prevent surgical operation. Suture of the perforation and closed thoracotomy drainage is productive of best results in these cases.

ESOPHAGEAL ATRESIA

Atresia of the esophagus in the newborn demands immediate surgery whether or not it is associated with tracheo-esophageal fistula. Direct end-to-end anastomosis of the two esophageal segments is the procedure of choice and can be carried out in 80 per cent or more of cases. Any associated broncho or tracheo-esophageal fistula should be closed. Whereas this condition was formerly universally fatal, with modern technics and care now, some 60 per cent of infants with this condition can be saved.

TUMORS OF THE ESOPHAGUS

The most common benign tumor of the esophagus is leiomyoma. Leiomyoma of the esophagus produces symptoms similar to carcinoma, but the duration of the symptoms may exist for a longer period of time. Diagnosis may be suspected by the roentgen appearance and confirmed by esophagoscopy. The proper treatment for this condition is surgical resection. This can often be performed locally without having to remove a segment of the esophagus. Often a small leiomyoma may be excised from the wall of the esophagus similar to the manner in which one does a uterine myomectomy. If a portion of the esophagus must be removed, then an end to end esophageal anastomosis or an esophagogastrostomy is necessary.

Carcinoma of the esophagus will be encountered approximately 200 times as frequently as benign esophageal tumors. The survival rate for carcinoma of the esophagus is directly proportional to the time of diagnosis. Lesions which are diagnosed ear-

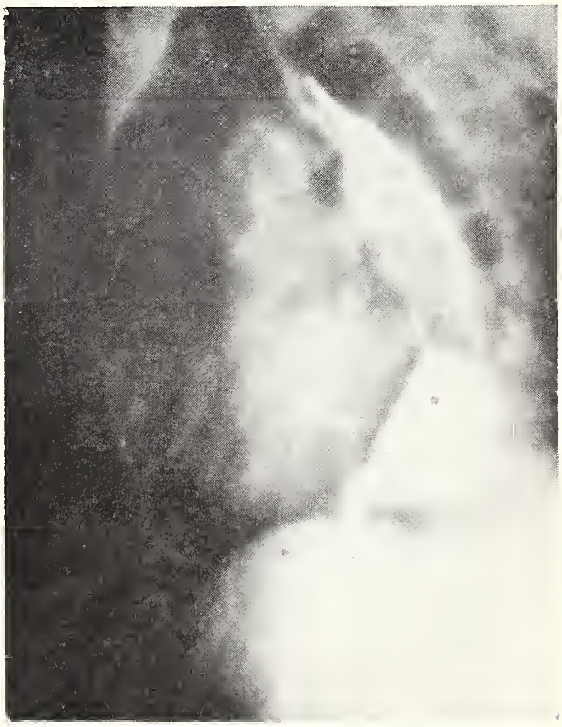

Fig. 5. High esophago-gastric anastomosis in a patient alive and well three years after resection of a carcinoma of the mid-esophagus.

ly and resected early will have some chance for cure.

Surgical resection of the esophagus offers the best chance for survival, and in my opinion, it is still the best palliative procedure, provided the patient has high grade esophageal obstruction.

Esophagectomy has about a 10 to 15 per cent mortality rate, but this rate is not excessive considering the magnitude of the procedure. A left thoracotomy is preferred for the lesions of the lower esophagus, and we have found that right thoracotomy and simultaneous laparotomy using two operating teams is the preferred method for lesions of the middle or upper esophagus.

Approximately a 25 per cent survival rate in resected cases can be expected in cancer of the esophagus. (Fig. 5)

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Meconium Peritonitis: A Case Report

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DEFINITION

Meconium peritonitis is a sterile chemical peritonitis of the newborn which occurs when meconium enters the peritoneal cavity, either prior to birth or very shortly thereafter. Meconium is a sterile mixture of bile, cast off epithelial cells, swallowed liquor amnii, along with gastric, pancreatic, and intestinal secretions[1]. Normally, it reaches the ileocecal junction at the fourth month and the rectum at the fifth month, of intrauterine life[2]. At birth the entire gastro-intestinal tract is distended with meconium.

ETIOLOGY

This very rare and highly fatal disease is the result of perforation of some part of the bowel; this may occur from the fourth or fifth month of gestation until forty-eight hours after birth. In about fifty per cent of a series of cases, a demonstrable intestinal obstruction predisposed to the perforation. The causes of the obstructions varied from congenital atresias to adhesions, volvulus, and intussusception[3]. Apparently, meconium within the intestinal lumen stimulates peristalsis, which, working against an obstruction, causes pressure necrosis and perforation of the bowel. One might hypothesize that this disease is closely akin to meconium ileus, an obstructive disease of the newborn caused by absence or paucity of pancreatic enzymes, in which the meconium becomes tenacious and putty-like. Perhaps at some time in prenatal life, a temporary pancreatic insufficiency predisposes to meconium ileus which in turn causes obstruction and perforation. This may suffice to explain those cases in which there is no demonstrable obstruction or atresia at operation or autopsy. In these latter cases, it is often impossible to demonstrate a site of perforation at autopsy or operation; this was true in the case that is to be reported.

DIAGNOSIS

The diagnostic features of this condition vary according to whether or not obstruction is present and as to how much time has elapsed since perforation of the bowel occurred. In general, it may be said that this condition may be held suspect when, in the newborn infant, are observed, abdominal distention, vomiting (the vomitus usually being a frothy greenish material), labored respiration, and absence of normal meconium stools. On physical examination, if obstruction is present, the abdomen will be tympanic; if ascites is present, the distended abdomen will be firm with a duller percussion note.

The real diagnostic clincher according to most authors is the flat and upright plate of the abdomen, in which a pathognomonic picture is present. Kasmersky, of Ohio State University, does not agree with the latter statement[4]. Diagnosis by x-ray will be dealt with by the discussor.

TREATMENT

This will obviously vary with each case, depending upon whether or not the perforation is open or sealed off, and, of course, whether or not the disease is recognized. Tempest, in a well-written review, confessed that at the time he saw his case, none of the hospital staff had heard of the syndrome meconium peritonitis[1]. This holds true for the authors.

If perforation is present, it must be closed, if obstruction is present, it must be relieved by that method which seems most appropriate. Gastric suction, replacement fluids, antibiotics, maintenance of a clear airway, and other supportive measures are necessary.

The prognosis is poor. Low reported a case that survived[3]. I know of no other case of survival.

CASE REPORT

The patient was brought to the office of Dr. T. J. Barkley, Belzoni. Mississippi, on the morning of July 12, 1955. The infant was approximately 35 minutes old at the time Dr. Barkley first saw her. She was brought to Dr. Barkley's office by the county health nurse; a marked cyanosis was present and the infant was showing obvious respiratory difficulty.

Examination at that time showed a well developed female negro infant, whose abdomen was very markedly distended. A greenish frothy material was seen bubbling from the infant's nose. The respiratory rate was rapid, being 50 to 60 per minute and the infant's heart rate was 160. The patient was immediately transferred to the Humphrey County Memorial Hospital for oxygen therapy and further observation.

Further inquiry revealed the infant cried weakly but spontaneously at the time of delivery. No other symptoms were observed other than those mentioned. The labor was not excessively long and the delivery was not excessively difficult. There was no report of any abnormal decrease in fetal movement at any time during the pregnancy, and the mother, who had been checked at the Humphrey County health office, had no remarkable complicating symptoms.

Physical examination done several hours after the baby had been admitted to the hospital showed a temperature of 96.2°, a pulse rate of 160, and a respiratory rate of 60. The infant was a well-developed fairly well nourished newborn, who at that time was several hours old. Cyanosis was present. General physical examination showed the baby to be within normal limits, except for the rapid respiration, the cyanosis, a frothy green material which was bubbling from the nares, moist rales throughout the chest, and a markedly distended abdomen. The percussion note was dull throughout the abdomen; no bowel sounds could be heard. A mass 3 x 4 x 4 cms. was palpable in the left lateral portion of the abdomen. The mass was firm and freely movable. Rectal examination revealed the usual amount of meconium.

After a flat plate of the abdomen was made it was decided that the infant probably had a calcified teratoma, and that laparotomy was in order.

After inserting a cannula in the saphenous vein for the admission of appropriate replacement fluids, and with the infant anesthetized with ether-oxygen, the abdomen was entered through a transverse incision above the umbilicus. Upon exposing the peritoneum it was obvious that there was a large quantity of fluid beneath the peritoneum. Upon incision of the peritoneum over 200 cc. of clear straw-colored fluid was evacuated. Digital exploration of the abdomen revealed that the mass in the left abdomen was calcified omental tissue. Around these areas of calcium deposits, which were present in all omental tissue, in the falciform ligament, and in the lateral peritoneal gutters, there was a gelatinous material which resembled very closely lime jello. This was literally scooped from the abdomen. No bleeding resulted and after the removal of most of this material nothing was left but the viscera, there being no omental tissue remaining. A thorough search was made for an opening in the bowel but none was found. The small intestines were firmly adhered to one another and comprised a small mass. Most of the small bowel was dissected from its attachment to itself and a stripping of the small bowel was done. No site of perforation was found.

The rectum, sigmoid, transverse and ascending colons were identified. The area of the most severe reaction was in the region of the gastrocolic omentum, and it is assumed that the perforation which must have occurred two or three months prior to delivery of this infant, was in the region of the transverse colon. The stomach and duodenum were normal. The spleen and kidneys were normal. The liver was somewhat swollen and its usual sharp edge blunted. A diligent search failed to demonstrate the presence of any pancreatic tissue. The anatomical site of the pancreas was explored as accurately as possible and no pancreas could be found.

Upon release of the increased intra-abdominal pressure the infant's respiration was much improved. However, it continued to exude the greenish frothy material from its nose and mouth and during anesthesia, constant suction was necessary to keep a patent airway.

The abdomen was closed in the routine manner. Postoperatively the patient was given a formula of one part lactum to two parts water. This was offered every two hours. Persistent vomiting necessitated the introduction of a gastric suction, and appropriate replacement fluids were given by clyses and intravenously. The temperature which had risen to 102 degrees rectally following the operation gradually returned to normal and the prognosis seemed to improve. However, 95 hours after admission to the hospital, the patient very suddenly expired. Unfortunately permission for autopsy was not granted.

COMMENT

A case of meconium peritonitis has been reported. In retrospect, it would seem that simple paracentesis would have been more appropriate therapy than laparotomy.

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The Uses of Corticotropin, Adrenal Steroids, Including Prednisone and Prednisolone, in Ophthalmology

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The purpose of this paper is to review the vast literature that has accumulated in the last seven years, since the introduction of corticosteroids into medical practice, and try to summarize the salient points in biochemistry, physiology, clinical indications and contraindications, the dosage and advantages of systemic and local therapy, with each of the particular hormones. Since we are dealing with a very potent drug, I deem it advisable that we should be well versed in the basic fundamentals of hormone therapy, as serious local and systemic complications may arise from the injudicious use of this type of therapy.

BIOCHEMISTRY AND PHYSIOLOGY

The two principal adrenal steroids are cortisone and hydrocortisone. Their principal activities are very similar, although hydrocortisone is probably more active weight for weight and is less irritating to synovial membranes when injected into joint spaces. This group of endocrine regulators is known as gluco-corticoids. These hormones possess the property of protecting life in resistance to various forms of stress ordinarily lethal to the unprotected adrenalectomized animal. They affect fat, protein, and carbohydrate metabolism, promoting glucogenesis, hyperglycemia, glycosuria and negative nitrogen balance unless adequate protein is supplied. They lower an effect on the lymphatic system producing a lymphopenia and reduce the size of the enlarged lymph nodes. They also produce sodium retention and potassium excretion and may profoundly alter the electrolytic balance when given in large doses and over a period of several days. They also effect urinary excretion of creatin and uric acid but do not change creatinine excretion. The therapeutic dosage of both cortisone and hydrocortisone inhibits the production of corticotropin by the pituitary and depresses the function of the adrenal cortex. For this reason, after prolonged use of either drug, the withdrawal should be gradual in order to permit the atrophied adrenals time to be reactivated and take over their normal function. The signs of deficient adrenocortical function being, depression, lassitude, muscular weakness and lethargy. If a surgical or medical emergency should arise during the withdrawal period prompt re-employment of the gluco-corticoids would be indicated. Because the electrolyte balance may be upset it is wise to take the following precautions:

PRECAUTIONS TO BE TAKEN DURING PROLONGED THERAPY

Hogan stresses the following precautions to be taken during prolonged systemic therapy:

1. Frequent urinalysis (at least twice weekly.)
2. Daily blood pressure recordings.
3. Weight measurements at least weekly intervals to rule out water retention.
4. Administration of potassium to replace that lost in the urine and to prevent sodium retention.
5. Constant observation for sepsis or perforation of peptic ulcer.
6. Watch for evidence of Cushings syndrome.
7. Careful watch for exacerbation of ocular inflammation.

When the gluco-corticoids are administered over a long period of time one must be on the alert for widespread physiological and metabolic effects resembling Cushings syndrome. The usual signs consisting of moonlike or rounded face, hirsuitism, cervicothoracic lump, hypertension, edema, amenorrhea, negative nitrogen balance, and mental dis-

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turbances. The negative nitrogen balance is thought to delay wound and bone healing.

These endocrine regulators have been observed to have varying effects on the central nervous system—some patients being euphoric, while others are maniac and depressed. They are also reported to have an analgesic effect or increase the patient's capacity for pain.

These steroids have their profound effect upon ophthalmology chiefly because many of the inflammatory and allergic diseases are self-limited and because the battleground on which the battle between the invader and the host is fought is delicate and sensitive. They are therefore of great value in ophthalmology chiefly because of their anti-inflammatory or antiflagistic affect. They normally circulate in the blood in concentrations between 4 and 10 micrograms per cent. Under the influence of ACTH considerably larger amounts, principally hydrocortisone, are released into the blood stream.

The inflammatory response in most tissues, whether inflicted by bacterial toxins, foreign protein, chemical or physical irritants, is greatly reduced. Some defensive mechanism against bacterial invasion is inhibited, but antibodies are produced and antibody-antigen reactions take place in practically normal rates. Many bacterial diseases have been activated while taking cortico-steroids but true hypersensitivity reactions to bacterial products are mitigated. The response of normal tissues to histamine and true anaphylactic shock are not mitigated by the cortico-steroids. The pupillary reflexes, accommodation, or normal intraocular pressure is not altered by steroid therapy.

CONTRAINDICATIONS—HOGAN

The contraindications to cortico-steroid therapy may be divided into systemic and local. The chief systemic contraindications to the use of cortico-steroid therapy, according to Hogan, Woods and others, are as follows:

1) Peptic Ulcers, 2) Diabetes, 3) Tuberculosis, 4) Hypertension (unless mild and the patient is under constant observation), 5) Heart Disease (unless the patient's health permits such therapy safely), and 6) Infectious Diseases, unless properly protected with antibiotic therapy.

Now the local contraindications to steroid therapy are: Acute Herpes Symplex Keratitis, Epidemic Kerato-conjunctivitis and in the presence of bacterial infections, however, steroid therapy may be used safely in the presence of infections when properly covered with antibiotics.

DOSAGE

Hogan states that cortisone administered orally produces similar effects to that given intramuscularly. However, the action is less permanent. The peak plasma level occurs one-half hour after oral administration and returns to normal in four to eight hours. After intramuscular administration little or no rise in plasma level can be detected. The usual oral dosage is 300 mg. first 24 hours; 200 mg. second 24 hours, and 100 mg. or less daily thereafter.

For oral use the 25 mg. tablets are usually employed, although 5 mg. tablets are available. For parenteral use the acetate suspension containing 25 to 50 mg. per cc. is used. The therapeutic effect of intramuscular use is delayed for 3 or 4 hours but persists for 24 hours, thus a single daily dose usually suffices. If immediate therapeutic effect is desired one should resort to oral therapy or intravenous route. The usual route preferred is oral administration because of simplicity. If one is dealing with a juxtapapillary or macular lesion and immediate effect is desired, then one should resort to intravenous administration. In such cases corticotropin or a specially prepared cortisone is used.

TOPICAL CORTISONE

Topically cortisone may be used as suspension of cortisone acetate in strengths of 0.5 per cent and 2.5 per cent solutions and should be used at 1 and 2 hr. intervals and 1.5 per cent cortisone ointment instilled at bedtime, the two being equally effective and the solution being more pleasant for the patient to use. Should topical cortisone therapy prove inadequate then the subconjunctival route should be tried before resorting to systemic therapy. Usually .3 to .5 cc. of 0.5 per cent cortisone acetate is injected beneath the upper bulbar conjunctiva near the upper fornix to prevent the solution extending to the limbus. The injections are repeated at 3- to 5-day intervals. Then if therapeutic response is inadequate, systemic therapy may be resorted to.

DOSAGE OF HYDROCORTISONE (COMPOUND F)

The metabolic and therapeutic effects of cortisone and hydrocortisone are similar. The indications and contraindications are likewise similar. However, hydrocortisone administered intramuscularly is relatively inert and this is probably due to the fact that hydrocortisone is only one-seventh as soluble in body fluids as cortisone and this may influence its difference. Hydrocortisone is usually administered orally and is supplied in tablets of 20 mg. After oral administration the peak level is usually reached in one hour and returns to control level in 4 to 8 hours. The usual dosage is 80 mg. the first day in divided doses, and is reduced on the second and third day in accordance with clinical response. If urgency of administration is indicated hydrocortisone acetate suspension, containing 25 mg. per cc. may be dissolved in saline or dextrose and administered intravenously.

Topically hydrocortisone is administered as hydrocortisone acetate in 0.5 per cent and 2.5 per cent solution similarly as cortisone and is also available as 2.5 per cent ophthalmic ointment. It is also available in 0.5 per cent and 2.5 per cent strength for subconjunctival use.

CORTICOTROPIN OR ACTH

Corticotropin is only one of the many hormones produced by the pituitary gland and is produced in response to various stimuli as injuries, infections, and unusual exertions. The corticotropin liberated in turn acts on the adrenal cortex producing a number of hormones among which are cortisone and hydrocortisone. When given orally corticotropin is destroyed by the gastrointestinal tract and cannot be used orally. Likewise, it is of no use topically as it acts only by production of cortisone and hydrocortisone. It may be given intramuscularly and intravenously or as delayed acting acthar gel.

The initial intramuscular dose is 80 to 120 mg. a day in divided doses at six-hour intervals. Once therapeutic response is satisfactory, dosage is reduced to 50 or 80 mg. The usual maximum dosage is 150 mg. per day. If acthar gel is used the interval between injections is 12 hours.

If urgency is indicated corticotropin may be given in doses of 25 to 40 mg. dissolved in 5 per cent glucose and given as infusion over a period of eight hours. Hogan states that this method of effective as the intramuscular administration. The administration is from eight to twelve times as chief drawback to use of corticotropin being that it must be administered intravenously or intramuscularly. However, several authors report successful use of corticotropin where the use of cortisone and hydrocortisone were effective. Hogan points out that there may be a delay of results when cortisone or hydrocortisone had been used due to adrenocortical suppression from previous use of corticosteroids. It is usually reserved for chronic anterior ocular disease and acute inflammations involving the region of the disc, papillomacular bundle, macular or paramacular regions.

Experience has taught us that the choice of hormone therapy used locally, orally, parenterally or intravenously, should be made on the basis of severity of disease, its likelihood of causing permanently reduced visual acuity and the presence or absence of associated systemic disease.

INDICATIONS FOR HORMONE THERAPY

Local Therapy—The local use of cortisone, hydrocortisone solutions, and ointments have proved to be very useful in treatment of many local conditions of the lids, conjunctiva and anterior segments of the globe, as urticaria, drug eruptions of plant and chemical origin. Hydrocortisone has proved superior in treatment of urticaria, drug eruptions, and contact dermatitis, of plant and chemical origin. The 1 or 2.5 per cent hydrocortisone ointment in water soluble base has proved very effective. The blephroconjunctivitis of acne rosacea responds well to both cortisone and hydrocortisone drops and ointment. Since staphylococci infections are frequently associated with infectious eczematoid dermatitis, acne rosacea, contact dermatitis, phlyctenosis and catarrhal ulcers of the cornea, it is wise to combine antibiotics with steroid therapy.

In the treatment of vernal conjunctivitis hydrocortisone has proved far superior to cortisone. It does not cure but merely gives symptomatic relief; there is recurrence of symptoms on discontinuance of therapy.

Cortisone and hydrocortisone have both been disappointing in the treatment of keratoconjunctivitis sicca. The virus infection of herpes simplex has likewise responded poorly and many authors report aggravation of symptoms and even corneal perforation while under treatment. The patient usually experiences relief of pain and the patient continues treatment which leads to ulceration and eventual perforation.

The treatment of marginal corneal ulcers has been uniformly good. Recurrent erosions of the cornea have responded to both cortisone and hydrocortisone but results are superior with hydrocortisone. The treatment of superficial punctate keratitis has been uniformly good.

Diffuse and nodular episcleritis has responded well to cortisone and hydrocortisone.

The following anterior segment lesions of the globe have responded well to cortisone and hydrocortisone. The results in treatment of acute iridocyclitis have been uniformly good. Likewise has been the treatment of postoperative and traumatic iridocyclitis. The local use of both cortisone and hydrocortisone in treatment of chronic granulomatous iridocyclitis is frequently disappointing.

The systemic use of cortisone in posterior infections of the globe, including the optic nerve, choroid, and retina, are frequently disappointing.

Hogan reports excellent results in only three of twelve patients with optic neuritis and two of the twelve patients developed the disease in the opposite eye while under treatment.

In treatment of lesions of the posterior segment of the globe, Hogan reports ten of nineteen cases treated showed excellent response to systemic therapy. Of three cases of sympathetic ophthalmia treated, one failed to respond completely, even with large doses of corticotropin followed by cortisone. According to the experimental studies and the clinical reports of Woods, tuberculous uveitis and Brucella uveitis must be approached with caution. Wood states that every patient treated should be observed daily for evidence of intensification of the disease. He likewise warns that toxoplasmosis should be treated cautiously with corticosteroids.

Woods also warns that patients under systemic therapy should be watched carefully for secondary glaucoma. He states that it is well known that both cortisone and corticotropin have a desirable effect in the control of glaucoma secondary to acute iridocyclitis, however, he reports two cases in which secondary glaucoma developed while on steroid therapy which subsided promptly on cessation of treatment. Reduction in tension did not seem to be related to the exacerbation of the intraocular inflammation.

In the treatment of herpes zoster ophthalmus, Scheie reports definite clinical improvement in eleven patients treated. He reported that relief from pain usually occurred in one to two days, that the hormones suppressed signs of ocular inflammation such as iritis and keratitis, but were not curative, as shown by the frequent recurrence of symptoms once therapy was discontinued.

CORNEAL ABRASIONS

Gordon reports that there is general agreement that in normal clinical doses topically applied cortisone minimizes the scarring of corneal abrasions. It was his opinion that after observing patients clinically over a period of five years that the use of cortisone, and later hydrocortisone, following foreign bodies to the cornea resulted in appreciably less scarring than in the pre-steroid days. In the treatment of bullous keratitis Gordon states that his response has been disappointing, however, in the treatment of striate keratitis, following trauma or surgery, it was his impression that cortisone or hydrocortisone were both beneficial. He further states that some physicians object to the use of cortisone and hydrocortisone in recently operated eyes but it is his opinion that there is no question that the patients are happier and much more comfortable.

BURNS

In the treatment of alkali, acid, and thermal burns there is general agreement that steroid therapy is beneficial. It is generally agreed that local therapy is more efficacious than systemic therapy. The patients are much more comfortable and there is less tendency to neo-vascularization and cicatricial formation. Numerous authors report the beneficial effect of steroid therapy in prevention of neo-vascularization.

CORNEAL ULCERS

Gordon reports that there is no clear-cut agreement on the use of hydrocortisone with or without antibiotics in the treatment of an infected corneal ulcer, however, it is known that hydrocortisone or cortisone within itself, has no therapeutic effect upon bacteria. If cortisone or hydrocortisone either is used in the treatment of infected corneal ulcers, it should be used always in conjunction with proper antibiotics. Gordon reports that he has seen several ulcers that did not respond to antibiotic therapy alone but did respond beautifully where steroids and antibiotics were used in combination. Leopold states that he had found chlorophemacol and streptomycin were effective when employed in conjunction with steroid therapy.

SURGERY

Steroid therapy has proved to be of special benefit in treatment of patients with chronic uveal inflammation. A vast amount of clinical experience has accumulated which indicates that there is no deleterious effect from operating upon patients who are receiving steroid therapy as it does not delay in healing of corneal wounds on patients treated with steroids. Gordon likewise reported that in New York over a period of five years they had operated on many patients under steroid therapy without any deleterious effect on wound healing. There is general agreement by Woods, McLean, Patton, and many others, that cortisone and hydrocortisone are both very helpful in corneal surgery.

PREDNISONE AND PREDNISOLONE

Ever since the introduction of cortico-steroids into ophthalmology the biochemists have been in search of more potent steroids with less undesirable side effects. The two most recent products which have been introduced are prednisone and prednisolone, the synthetic analogue of cortisone and hydrocortisone respectively. These products resulted from the chemical alteration of the steroid structure. According to Colonel King and associates, these new synthetic products have proved to be of value in all disorders previously known to respond to cortisone or hydrocortisone. They also report that the relative therapeutic dose is small (one-fourth that of hydrocortisone) and that systemic side effects are minimal.

In my review of the literature I have found only four articles published on these cortico-steroids and three were in the November and December 1955 issues of the *Transactions of the American Academy of Ophthalmology and Otolaryngology*. In one of these articles King and associates reports in animal experimentation cortisone was less effective in controlling protein induced uveitis than prednisone, even when the former was used in strength two and one-half times that of prednisone. The comparative value of hydrocortisone and prednisolone was not tried experimentally owing to the lack of availability of drugs. For detailed report of these experiments the author wishes to refer the reader to *Transactions* for this original article.

In the clinical use of prednisone and prednisolone King used the same indications and contraindications as have been accepted for cortisone and hydrocortisone. Meticorten was applied locally as ointment, suspensions, or solutions. The 0.5 per cent acetate or alcohol form for the average case and the 2½ per cent aqueous suspension for the more severe cases. The prednisone acetate form was found to be slightly less effective than prednisolone alcohol 0.5 per cent. Local medication was administered hourly until clinical improvement and then applications lengthened. The oral dosage was 30 to 40 mg. daily, 10 mg. three times daily before meals, and continued until desired therapeutic results were achieved or an arbitrary seven-day limit in mild cases, or fourteen-day limit in severe cases. The dose was then reduced by 5 mg. daily until an average maintenance dose of 5 to 10 mg. was reached. In Hogan's article he points out that the indications and contraindications of local and systemic therapy have been accepted and that these are the same for prednisone and prednisolone as for cortisone and hydrocortisone. He also points out that contraindications are the same and that the same precautions must be considered in the use of prednisone and prednisolone as in other steroid therapy. According to Hogan, hydrocortisone acetate seemed to be as effective, or more effective, than cortisone when used topically for surface lesions of the conjunctiva and cornea, but for the deeper lesions, as deep keratitis and iritis, cortisone seemed to be more valuable. He used prednisone and prednisolone in solutions varying in strength from 0.1 per cent to 0.5 per cent as drops. Also ointments varying in strengths were used. He used drops at hourly intervals and ointment at night before retiring. The 0.5 per cent solution was found to be more effective locally than weaker solutions, and the 0.5 per cent solution was about equally effective as 2.5 per cent of hydrocortisone acetate. He used prednisone and prednisolone in posterior segment inflammation, using the dosage of between 50 and 60 mg. daily and occasionally 70 to 80 mg. was given in order to achieve proper therapeutic results. The amelioration of symptoms was familiar to other steroids but the dosage was much smaller.

Leopold reported that both prednisone and prednisolone had potent anti-inflammatory and anti-allergic properties and at the same time with less undesirable toxic reactions of other products.

CONCLUSIONS

1. Cortico-steroids are potent therapeutic agents and have marked antiphlogistic effect in treatment of many ocular diseases.
2. There have been established fairly clear-cut indications and contraindications for their use.
3. Severe local and systemic complications may arise from injudicious use of steroid therapy.
4. Prednisone and prednisolone have been proved to be superior to other steroids because of fewer side effects and lower dosage when used systemically.

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DISCUSSION

DR. L. D. ABERNETHY (Jackson) I am sure you all join me in expressing to Dr. Green our thanks for his timely and careful summary of the voluminous literature on the subject of ACTH and the adreno-cortical hormones. Likewise, to the biochemists who over 20 years ago began research on the steroids found in the adrenal cortex, and who have now succeeded in synthesizing the cortico-steroid drugs he has discussed, should go our thanks. The steroid nucleus is the basic chemical structure of many of our new important drugs and chemicals such as ergosterol, the estrogens, androgens, etc. To date 30 steroids have been isolated from the adrenal cortex, seven of which have biologic activity, and four being of major therapeutic value.

By manipulating the side chains and bonds between the carbon atoms it has been possible to vary the clinical effect on inflammation, allergy, pruritis, etc., as well as the side effects such as edema, sodium retention, and potassium loss. Some of the newer synthetic cortico-steroids differ only slightly in chemical structure, yet markedly in their biologic activity. Prednisone and prednisolone differ from cortisone and hydrocortisone, respectively, only in the presence of a double bond between carbon atoms Nos. 1 and 2. The most recently synthesized product is flouro-hydrocortisone — a flourine linkage off the No. 9 atom in the hydrocortisone nucleus. This drug has an anti-inflammatory property 10 times that of hydrocortisone, but due to its mineralo-corticoid activity it is not usable systemically. It is being marketed for topical use, however.

One sees in the literature mention of cortical atrophy. Happily, the word is apparently not used in the connotation that we of the optic nerve family are accustomed, since it apparently is a hypoplasia and, therefore, the gland returns to normal when substitution therapy is discontinued. As Dr. Green pointed out, cessation of therapy with the cortico-steroids should be gradual in order for the naturally occurring adreno-cortico-trophic hormone to act as the stimulus. Probably even better is the recommended practice of using in conjunction with the cortico-steroids 100 units of ACTH for every 400 mgs. of cortisone, 200 to 300 mgs. of hydrocortisone, or 100 mgs. of prednisone or prednisolone.

As to the clinical use of these drugs, I do not use them postoperatively until after the seventh day, because of an iris prolapse and two cases of hyphema, all in cataract patients, that happened to me and the patients when the drugs were just being introduced. Since withholding their use until a week postoperatively I have had no complications I could ascribe to their use. In cataract surgery I do not use hydrocortisone on the first eye as long as no complication develops, thereby hoping to reserve the full therapeutic effect for the second eye, should surgery be necessary on it.

I have one patient with sclero-keratitis of undetermined etiology who has been on prednisolone since January 24. Most of the time he has been on 15 mgs. per day, which seems to be the minimum dosage that will keep him comfortable. He is now being given ACTH, 80 units, twice a week, in the hope that no permanent damage will be done to his adrenals. The most recent sidelight on the subject is the report of three deaths in children who were taking cortico-steroids and died of chicken pox.

The future holds something for the man who keeps his faith in it.

A determined man can do more with a rusty wrench than a loafer with all the tools in a machine shop.

There is more hunger for love and appreciation in the world than there is hunger for bread.

Give the best you've got today. That's a recipe for a better tomorrow.

Progress in the Treatment of Pulmonary Diseases*

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Sanatorium, Miss.

Before the general use of chest x-rays, diagnosis of tuberculosis by physical examination was often the equivalent of a death sentence because the disease was far advanced and there was no effective treatment. In the second quarter of this century the disease could be fairly well diagnosed early enough to control the disease under favorable conditions. Many of these diagnoses were entirely dependent upon an x-ray shadow and consequently faulty. The treatment was bed rest, pneumothorax, pneumoperitoneum and thoracoplasty. There is no question of the efficacy of prolonged bed rest, but the problems involved are many.

Pneumothorax was given to thousands of patients. In the great majority of those attempted it was ineffective because of adhesions which prevented collapse of the desired portion of the lung. In many, the danger of empyema was overlooked until too late. Pneumothorax was often maintained until pleural thickening had destroyed a large part of the lung's functional capacity when it was discontinued. Because of these disadvantages it fell into disfavor. In 1945 at Mississippi State Sanatorium we initiated 73 pneumothoraces; in 1955, *five.* Properly used, pneumothorax is good treatment.

Pneumoperitoneum was a stepchild in that it was used only on those cases not amenable to anything else. In the early 40's several groups analyzed their result and found some unexpected benefits. For several years it was used extensively. Because it came into general use about the time of potent drugs, the acute value of pneumoperitoneum has not been evaluated fully. Briefly, pneumoperitoneum is less hazardous than pneumothorax, but it is less effective. In some parts of the country it is still used extensively but in most places it is used sparingly now.

The old Alexander thoracoplasty, used for many years, has given way to resection and plombage.

The sulfas and penicillin brought a great advance in many infectious diseases, but had no anti-TB effect. The ancient and medieval annals are filled with herbs, concoctions, tinctures, various animal excreta, and witches brews used in the treatment of TB, which for centuries was the greatest killer of Europeans. Those engaged in treatment of tuberculosis were first skeptical of a new drug first reported by Schatz, Bugie and Waksman in 1944. This was prepared from microorganisms found in the ground and involved processes that would have delighted an ancient alchemist; fermentation, filtration, purification and concentration, etc. The drug was named streptomycin.

In spite of the difficulties and financial risk in large scale manufacture, it was made generally available by 1946. The wholesale cost of the drug was about $25.00 per day in the dose first used, so it was given only to those who were desperately ill. The benefits were dramatic, but after a few months the disease returned in all of its original severity and there were serious toxic manifestations: severe skin rash, eighth nerve and renal damage. These were overcome by reducing the dose, but the problem of bacillary resistance remained.

In 1948, PAS came into use. It occasionally causes a febrile cutaneous reaction that is severe, but the usual difficulty is GI irritation, which is the rule rather than the exception in those with any GI difficulty. Its anti-TB effect is much less than streptomycin—its principal virtue lies in the fact that, taken with streptomycin (or INAH), it helps to inhibit the emergence of resistant bacillary strains.

The next of the three standard drugs used today — INAH — came along in 1952. It ranks high among the "wonder drugs" of today. It is not expensive, can be taken by mouth and is virtually non-toxic in therapeutic doses. In effect, it is comparable, or superior to, streptomycin and much more potent than PAS. INAH, which diffuses through serous membranes, has changed the prognosis of tuberculosis meningitis from hopeless a few years ago, to very good at present.

Of the several possible drug routines available today, the following rules are agreeable to most:

1. One should take at least two of the three standard drugs. (Streptomycin, 1.0 gm. intramuscularly, twice a week; PAS, 12 gms. per day, in divided doses; INAH, 4 mgs. per kilogram per day, in divided doses). If one drug is taken alone it usually becomes impotent in three to six months. There appears to be no definite advantage in taking all three at first.
2. They should be taken without interruption

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*Read before the Central Medical Society, Sept. 4, 1956.

†Assistant Superintendent, Mississippi State Sanatorium, Sanatorium, Miss.

for a minimum of one year, and, beyond that, roughly for six months after there is no demonstrable evidence of activity.

While these drugs are amazing to those of us who treated TB in the pre-drug era, they are still very definitely an adjunct to established methods of treatment. They are being tried solely on their own merits, disregarding the time-honored rest, etc., but that method remains in the very risky category and TB is still quite capable of killing.

The advent of potent drugs, the understanding and overcoming of the many problems encountered upon opening the chest and the remarkable recent advances in anesthesiology have enabled the surgeons to assume an increasing importance in treating TB.

Briefly put, our policy at Mississippi State Sanatorium is, first, to try to be sure of the diagnosis of TB. The use of cultures of sputum, fasting gastric contents, and bronchial washings, has become routine. It is now recognized that many things other than TB can cause abnormal chest x-ray shadows: atypical pneumonia, which covers a great many different diseases; tumors, including malignancy, which is one of our greatest problems; infarcts; collagen diseases, etc.

Younger patients with TB are put on strict bed rest until over the toxic symptoms, which usually takes only a few days. Two of the three standard drugs are given. If progress is satisfactory, exercise is gradually increased and he is eventually discharged to continue the drugs at home. Otherwise the patient may be subjected to surgery. Resection and permanent collapse, using inert plastics, are common procedures. Over-all results, so far, have been excellent.

Not too long ago, it was often said that one was not likely to develop TB after 40. At present it would be more nearly correct to say that one is not likely to develop TB before 40.

Tuberculin has gone through the usual phases of popularity. Old tuberculin was first hailed as the cure for TB but was soon found to be useless, or even harmful, as a treatment. The old tuberculin has been replaced by the more reliable PPD. The intradermal test is preferable to the patch test. PPD has established its usefulness in diagnosing primary TB. In the pre-drug era its usefulness to practicing physicians was very limited. At present we have effective drugs at hand with the possibility of better ones being developed and the tuberculin test to diagnose TB long before clinical disease occurs. Although premature optimism is dampened by the fact that among our ageing population we have a greater reservoir of infected persons now than ever before, there is reason to hope that within several more generations the greatest killer of all time may be practically eradicated.

Another condition that is becoming more prevalent among our ageing population is pulmonary emphysema. We are concerned with the chronic, generalized, obstructive emphysema which is characterized by dyspnea, increased AP chest diameter, widening of the interspaces, flattening and decreased excursion of the diaphragms. The x-ray also shows a reduction, or absence, of normal lung markings and increased radiability. It is essentially an over-distention of the lungs by air which cannot be expelled. This condition, also, is practically exclusively a disease of men. It usually occurs in the older age groups, but is occasionally seen in younger men.

Emphysema in the past was considered almost a normal part of the ageing process, and accepted as such. The basic pathology appears to be bronchial obstruction. There is no agreement about the fundamental cause. Many possible factors are being investigated. The real answer to the problem of emphysema lies in its prevention because the condition we call emphysema is irreversible.

Treatment, when superimposed infection is the precipitating cause of disability, is satisfactory; otherwise, it is disappointing. Smoking is certainly to be avoided, as are all irritants. Emphysema belts, pneumoperitoneum and breathing exercises have been used with variable success in an effort to improve the diaphragmatic function. Weight gain is sometimes recommended to help raise the diaphragm, but some degree of *cor pulmonale* is often present, and additional weight increases the circulatory load. Elevation of the foot of the bed is sometimes helpful in that the abdominal viscera press upon the diaphragm and bronchial drainage is facilitated. The dyspnea of emphysema is not aggravated by this position. In the absence of cardiac involvement it is worth a trial.

Positive pressure breathing has been extensively used in recent years and, with an aerosol bronchodilator such as isuprel (isopropylarterenol), immediate benefit is usually obtained. This procedure may get air through the smaller, partially obstructed, bronchi; relieve the bronchospasm; help wash out the residual carbon dioxide; and provide a rest from the exertion of breathing. These machines require a source of oxygen. The bronchodilator drugs can be used with hand nebulizers, but are not so effective. These are usually given for a 15-minute period four times daily. The corticosteroids are among the most recent measures tried for relief of bronchospasm but are recommended only as a last resort.

Bronchitis is usually present in emphysema and is often due to chemical irritation from smoking. All but the worst tobacco addicts insist that smoking be stopped. For infectious bronchitis expectorants and antibiotics in large doses are effective.

A compensatory polycythemia often develops, increasing the cardiac strain. Digitalis is indicated if signs of failure appear.

Sarcoidosis remains a fascinating enigma. It has many symptoms among which are Boeck's sarcoid, uveo-parotid syndrome, Mikulicz's disease, etc. It is often found on routine chest x-ray, which is frequently indistinguishable from miliary TB. Until recent years many authorities considered sarcoid a non-caseating form of TB. Since that theory was abandoned it has been grouped with infection, malignancy, allergy, collagen diseases, etc. The etiology is unknown. The disease is usually benign. Its real importance lies in being aware of it and avoiding a diagnosis and prognosis of TB, Hodgkins, lymphosarcoma or mycotic disease.

The usual picture is to have a robust individual come in who was told his x-ray showed extensive TB. He is very definitely asymptomatic. Tuberculin test is characteristically negative, and albumen globulin ratio may be reversed. The colored race is more prone to this condition than whites, and in them there is often x-ray evidence of involvement of small bones. Superficial material to biopsy is usually scarce so we depend largely on scalene node biopsy for a definite diagnosis. As for treatment it is usually sufficient to tell the patient he does not have TB or something worse. Actually, there is no specific treatment. Steroids appear to have some temporary beneficial effect in the disabling cases, but are not recommended as a routine measure.

We have become much more aware of the fungus infections of the lung in recent years. The x-ray appearance is often indistinguishable from TB. When we are unable to prove TB we next consider the possibility of mycotic infection. The ones most commonly encountered are histoplasmosis, actinomycosis, North American blastomycosis, coccidioidomycosis and candida albicans. Until a few years ago it was generally believed that pulmonary calcification on a chest film was always the result of healed TB. Now it appears that this is more often the result of histoplasmosis, which is endemic in the Mississippi Valley area. North Mississippi has a higher percentage of infected persons than south Mississippi. The organism, histoplasma capsulatum, is primarily a parasite of the reticulo-endothelial system and can be demonstrated in tissue sections, sputum, lymph nodes, peripheral blood or bone marrow. It differs from other pathogenic fungi in that it is almost exclusively intracellular. The histoplasmin skin test and complement fixation tests are helpful. There is no specific treatment.

Actinomycosis is caused by the anaerobic actinomyces bovis and characterized by relentless progression of the lesions regardless of the type of tissue met. Since it usually reaches the skin, material for examination is readily obtained and easily identified. Penicillin in massive doses is effective treatment. The broad-spectrum antibiotics are second choice if penicillin cannot be tolerated.

North American blastomycosis is not unusual. We have had difficulty demonstrating blastomyces dermatitidis in sputum by smear or culture. The diagnosis is often made from a resected pulmonary lesion that was thought to be TB, or possible malignancy. Skin lesions are typical, as the name indicates, and from these the organism is easily found. We have had good results in past years with iodides. The aromatic diamidines (stilbamidine and (2) dihydroxystilbamidine) are recommended at present.

Coccidioidomycosis is called Jan Joaquin fever because of its prevalence in that river valley. We have diagnosed several cases after surgical removal.

Candida Albicans, or Monilia, is a common parasite. Its prevalence has become more marked in recent years due to the widespread use of antibiotics. It has been reported as being pathogenic in pulmonary disease, but this is still questioned by most.

In summary, remarkable progress has been made in the diagnosis of pulmonary diseases and in the treatment of pulmonary TB, emphysema and malignancy of the lung are the great challenges today.

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(continued on page 289)

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

NEWS

ST. LOUIS - MARCH 25!! The Academy is holding its annual meeting in St. Louis next month. For Mississippi doctors, it is closer to home than it has been in four years. Are you one of the members who always says, about this time of year, it's too far away—maybe next time? If you are, *this is next time!*

Another question—do you have any idea what the Annual Assembly really is? For one thing, it's not just another convention. Nor is it merely a good medical meeting. True, it *is* a convention, and as for medical meetings—it's the best! But that's not all. It is *your* meeting!

Not just "yours," meaning every family physician's, but *yours*, individually. If it weren't for you, there would be no meeting, for there would be no Academy. And without the Academy, what kind of doctor would you be today?

The Annual Assembly needs you as much as you need the excellent post-graduate instruction it offers. Remember the dates—March 25-28. And don't forget to make your hotel reservations—why not do it now??

ANNOUNCING . . .

The Mississippi Academy of General Practice and the University of Mississippi School of Medicine will co-sponsor a one-day postgraduate Seminar on June 13, Heidelberg Hotel, in Jackson. This meeting has been made possible by a grant from the National Drug Company. Details will be announced later.

THOUGHT . . .

Does any doctor in Mississippi still think he can't attend 150 hours of postgraduate instruction every three years?

MEMBERSHIP NOTICE

Effective immediately, the Mississippi Academy of General Practice has authority to evaluate its members' postgraduate study records. This means that members should send their filled-in membership cards to the State Headquarters (P. O. Box 1435, Jackson, Miss.) instead of to Kansas City. If you haven't already sent in your 1956 record, do so now!

If any member needs help in calculating his hours of credit, you may send a list of meetings attended to Dr. L. F. Rittelmeyer, Chairman of the Education Committee, University Medical Center, Jackson. In general, you get one hour's credit for each hour attended. Because there has been some confusion regarding categories (formal and informal), the Education Committee will be glad to assist members with their study reports.

GETTING ACQUAINTED

Members in Districts I to VI, inclusive, have been listed previously.

District VII — Dr. Oscar E. Ringold, Director, Cleveland, Miss.; Dr. Thomas C. Oliver, Leland; Dr. Aubrey A. Aden, Indianola; Dr. Wm. M. Barnard, Clarksdale; Dr. Wm. H. Brandon, Clarksdale; Dr. Wm. D. Fitzgerald, Cleveland; Dr. John H. Graves, Leland; Dr. Martin B. Harthcock, Clarksdale; Dr. Mary Elizabeth Hogan, Glen Allen; Dr. J. J. Kazar, Tchula; Dr. Robert H. F. Lynch, Marks; Dr. Julius L. Levy, Clarksdale; Dr. Byron A. Mayo, Drew; Dr. John Milam, Cleveland; Dr. Daniel O. Pierce, Jonestown; Dr. W. E. Sheffield, Charleston; Dr. Wm. P. Warfield, Clarksdale; Dr. Sharkey Wolfe, Greenville; Dr. Wallis S. Witte, Leland; Dr. Richard E. Schuster, Lambert; Dr. Carl G. Nichols, Jr., Leland.

District VIII — Dr. Kermit D. Laird, Director, Starkville, Miss.; Dr. Chester C. Brummett, Aberdeen; Dr. Walter F. Cresswell, Jr., Aberdeen; Dr. John F. Eckford, Starkville; Dr. Elias K. Guinn, Okolona; Dr. John C. Longest, Starkville; Dr. Wm. T. Oakes, Ackerman; Dr. W. W. Pearson, West Point; Dr. S. B. Platt, Columbus; Dr. Hunter L. Scales, Starkville; Dr. George Wilson, Eupora; Dr. Warren T. Dinsmore, Houston; Dr. J. H. Shoemaker, Okolona.

No life can ever be complete
Without the bitter with the sweet.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D.	Cardiology
HARVEY F. GARRISON, Sr., M.D.	Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center	Surgery

CARDIOLOGY

OBSERVATIONS OF TAKAYASHU'S SYNDROME

Acta Med Scandinavia, Vol. 155, Page 275, No. 4, 1956
By Ask-Upmark and C. M. Fajers

This report is concerned with the autopsy findings in a case of Takayashu's Syndrome or so-called "pulseless disease" in a 40-year-old woman who died of uremia. Takayashu's Syndrome is described in this article as a chronic progressive and, as a rule, obliterate arteritis, involving the arteries of the aortic arch and depriving the upper half of the body of its blood supply. This patient had symptoms pertaining to closure of individual arteries from the aortic arch, such as exertional pain in the arms, decreased visual acuity and syncope on assumption of the erect position, particularly during menstruation. She was also in heart failure and had definite anginal type pain. Heart failure was the final illness but the ultimate cause of death was uremia, secondary to overgrowth of the glomerule by connective tissue and further damage by infarctions and renal artery thrombi. All of the arteries arising from the aortic arch were filled with organized, laminated thrombotic tissue, and the wall of the descending thoracic aorta was thickened. Severe atherosclerotic changes with secondary thrombi were present in the abdominal aorta and the vascular pathology was characterized by the presence of an arteritis involving all ears of the affected arteries.

Aortic arch syndrome may also be produced by syphilis, arteriosclerosis, rheumatic fever arteritis, and other types of collagen arteritis, but Takayashu's syndrome has nothing to do with these entities. The pathologic lesion suggests a primary arteritis with only slight evidence pointing to rheumatic or rheumatoid origin, and histologically seems to be more related to the cranial arteries of Horton. The criteria for identification would be: 1) absent blood pressure in the upper extremities or hypotension in the upper extremities all out of proportion to the pressures found in the legs; 2) presence of angiomatous or AV aneurysmal shunts between the retinal arteries and veins; 3) predilection for young women; 4) absence of clinical and radiological arteriosclerosis in syphilis; 5) arteriographic diagnosis, either by venous or arterial aortography; 6) cerebral symptoms secondary to ischemia (hemiplegia, aphasia, hemianopia, monocular blindness, dizziness, etc.)

Comment: This is an extremely rare disease, only three cases having been reported within the continental United States at this date. The name itself, with its mellifluous intonations, can be easily remembered and humorously bandied about by those physicians most interested in nosologic entities. Its ease of diagnosis, however, should be remembered and the possibility of transplantation of arterial graft according to DeBakey's method should be kept in mind.

PEDIATRICS

Prednisone Therapy of Acute Lymphatic Leukemia in Children. C. B. Hyman and P. Sturgeon. Cancer 9:965-970 (Sept. - Oct.) 1956 (Philadelphia).

Since May, 1955, the authors have used prednisone in the treatment of 21 children with acute lymphatic leukemia, whose ages at the time of diagnosis ranged from 5 months to 10 years. The diagnosis was confirmed in each case by bone-marrow aspiration. Prednisone therapy was instituted 14 to 300 days after the known onset of the disease. Eight of the patients received prednisone as their initial antileukemic agent; before this they had required no treatment or were maintained by blood transfusions alone. Nine patients previously had received 1 to 2 courses of 6-mercaptopurine; 3 had received both 6-mercaptopurine and cortisone; and 1 had been treated with 6-mercaptopurine, cortisone, and amethopterin. The 21 children received 27 courses of prednisone therapy, and 18 of the 27 courses were followed by complete or partial remission. A definite change, clinical or hematological, occurred in the patients who responded 1 to 24 days after the onset of therapy. Remissions lasted from 19 to 107 days; the median duration was 53 days. Six of the children are currently in remission. Because of the lack of a control group, the data presented cannot be used to compare the relative values of prednisone and cortisone in the management of acute lymphatic leukemia in children. However, as the majority of the actions of prednisone and cortisone in a variety of other conditions are qualitatively similar, it is not unreasonable to expect one to be as effective as the other in the treatment of children with acute lymphatic leukemia. One investigator who used cortisone obtained a therapeutic response in about the same percentage of children with lymphoblastic leukemia.

Comment: It has been my privilege to use cortisone in the treatment of acute leukemia in children. Certainly the response to treatment in many cases is sufficient encouragement to continue its use.

SURGERY

DEVELOPMENTAL ASPECTS

Causes and Prevention

From an article by Theodore H. Ingalls, M.D.,
J.A.M.A. 161:1047, July 14, 1956.

Recently an entirely new concept of the etiology of congenital anomalies has been proposed. Since the brilliant work on fruit fly genetics, it had been assumed that congenital anomalies were all due to outrageous misfortune in chance combinations of genes. However, Dr. Ingalls of Harvard's Epidemiology Department has now shown that many fetal anomalies can be caused by producing stress in the gravid mouse. The type, timing and intensity of the stress all appear to be factors in the production of specific deformities. Ingalls used a standard method of producing stress by subjecting pregnant mice to an atmospheric pressure simulating that of altitudes of 25,000-30,000 feet for five hours at various stages of gestation. It was found that early rib fusion, harelip, cleft palate, cyclopia, anencephaly and open eye could be produced depending on the embryological change that was taking place at the time of the stress production. The stress does not necessarily have to be hypoxic in nature. It is known that x-ray, vitamin deficiency, cortisone intoxication, as well as hypoxia, can produce cleft palate if the agent is effective when the two halves of the palate fuse on the fifteenth day of pregnancy. Richmond and Thomas, working with rats, found that the injection of trypan blue into the gravid rat on the eighth day produced a disproportionately large number of cardiovascular defects in the offspring. Type of stress may be specific in producing certain defects, provided this factor is operating at the time of embryological differentiation.

It has been noted by other observers that pregnant women who bleed during the first trimester have a higher incidence of deformed children than usual. This may signify that the fetus has undergone a temporary period of intra-uterine stress. Ingalls cites three cases of Mongoloid babies born following maternal stress which probably resulted in fetal hypoxia. "A mother gave birth to a Mongoloid child after carbon monoxide poisoning in the second month of pregnancy. Another produced Mongoloid twins after a head-on collision of the automobile she was driving on the 59th day of pregnancy. A third mother of a Mongoloid baby had a tooth extracted under gas-oxygen anesthesia administered late in the second month of pregnancy. This is the stage of development when the tissues that are stunted in Mongolism—the nasal bones, the phalanges of the little finger, and the cardiac septum—are developing." Mothers suffering from chronic hypoxia, as those with organic heart disease, produce a higher proportion of anomalous children than do normal mothers.

Nearly fifteen years ago Gregg, in Australia, proved that an acute infection, rubella, could cripple brains, hearts, eyes and ears of unborn babies if the infection were contracted by the mother in the first trimester of pregnancy.

If the sequential relations of maternal-fetal events are correct, normal embryos are assumed to be potential candidates for cyclopia around the first week of life, conjoined twins the second, ectromelia the third, tracheo-esophageal fistula at the fourth, nuclear cataract of the lens at the fifth, harelip at the sixth, cleft palate around the seventh, and Mongolism at the eighth. Ingalls emphasized that these specific defects are not independent entities, as they usually occur with other anomalous accompaniments. Tracheo-esophageal fistula, for example, is regularly associated with defects of the spinal column or ribs.

Prevention

As for prevention of these congenital anomalies, the teratogenic effect of the acute virus diseases such as rubella could be largely eliminated by exposing female children and allowing them to develop a natural immunity in early life. Much mental retardation and cerebral palsy may be prevented when conditions causing fetal hypoxia are prevented. A thorough gynecological evaluation, particularly of older women, should be accomplished as they run a greater risk of difficulty during pregnancy and consequently have a greater number of Mongoloid progeny. Remedial action should be taken for blood and endocrine dyscrasias and cardiovascular and renal disease. Diabetes, especially, should be regulated precisely, as insulin itself is a teratogenic agent and should not be given excessively. Particularly, elective flights, operations, and major dental procedures should be done before pregnancy or else postponed.

With increasing knowledge of the specific causes of congenital anomalies prophylactic measures can be taken to eliminate them. A new era of improved quality of our offspring is in the offing.

J. Harold Conn

Acute Benign Pericarditis*

BURT FRIEDMAN, M.D., F.A.C.P.
Memphis, Tenn.

Acute benign pericarditis refers to the clinical entity of an acute, non-suppurative affair of the pericardium, and perhaps sub-epicardial myocardium of unknown etiology. This disease is characterized by many abnormal signs and symptoms, with apparent complete recovery within two to eight weeks. No sequelae have been described, only a few deaths have been reported, and specifically constrictive pericarditis does not seem to result.

In clinical practice, the finding of pericarditis is usually regarded as evidence of some serious underlying disease, including rheumatic fever, myocardial infarction, terminal uremia, tuberculosis, pneumococcic infection, various septicemic states, and generalized disseminated lupus erythematosis. The occurrence of pericarditis in association with these diseases is well known and usually creates no diagnostic problem. However, acute pericarditis, unassociated with systemic disease, might cause diagnostic difficulties, in particular regard to the similarity that might exist in the adult with acute myocardial infarction, and in the child with acute rheumatic pericarditis. Recognition of so-called acute benign pericarditis is highly desirable, since the differentiation of it from other types of pericarditis and myocardial infarction is of great importance because of the immediate and ultimate prognosis, as well as the differential in the management of the case.

The impression is gained that this condition is not well known and that cases are being overlooked. However, many reports have appeared in the literature, especially since 1940. It was described in the second edition of Osler's *Principles and Practice of Medicine* in 1895. Hence, it would seem that this disease should not be as unfamiliar to us as it apparently is. If the following points are carefully considered, it is felt that the diagnosis can be made rather easily.

HISTORY

Most cases occur simultaneously with or during the recovery phase of a respiratory infection.

AGE INCIDENCE

In the child, it occurs during the latter half of childhood, rarely under three years of age.

In the adult, the average age of occurrence is forty-two, whereas the average age of the appearance of myocardial infarction is fifty-five.

SEX INCIDENCE

There does not seem to be any sex incidence.

In myocardial infarction, the sex incidence is four times as prevalent in males as in females below the menopause.

SYMPTOMS

PAIN. The pain is outstanding, occurring most frequently in the substernal or epigastric region. The pain might be located also in the anterior chest, or either side of the mid-line, or in the shoulders or arms. This symptom is apt to be quite severe, but is usually not as intense as in infarction. It is commonly aggravated by deep inspiration, turning of the body, coughing, sneezing, and rarely by swallowing. It is lancinating and intermittent, in contrast to the less sharp pain of infarction and persistency of the pain in the latter until it leaves. Patients have variously described the discomfort as sharp and cutting, crushing, pressing, or as a feeling of indigestion. The duration is usually one to two days, but it is prone to recur and occasional twinges of pain may be expected for months. This symptom may be mistaken for that of an abdominal surgical condition.

DYSPNEA. This symptom is consequent to rapid, shallow breathing as a result of splinting of the chest. It usually subsides with the pain.

MANIFESTATIONS OF INFECTION. Chilliness, etc., or a grippe-like feeling with generalized malaise is common.

SIGNS

PERICARDIAL FRICTION RUB. This finding is almost always present, is loud, and may last two to three weeks. Furthermore, it comes on immediately, that is, within the first one to two hours after the onset of the pain. It is usually audible over the entire precardium. This is in contrast to the rub that frequently is heard in association with infarction, which occurs later — twenty-four to forty-eight hours—after the onset of a myocardial attack. This latter rub lasts only a brief time, and is limited in its audibility to the apical region of the heart.

FEVER. This occurs at the onset of pain, whereas in infarction it is delayed some twenty-four to forty-eight hours. It is usually mild—101 degrees to 102 degrees—lasting only a few days, but perhaps higher and more prolonged than is usual with the fever that accompanies myocardial infarction.

PLEURAL INVOLVEMENT. This is frequently associated with some effusion within the pleural space. It is not found in infarction except during the recovery phase of the latter—post infarction effusion syndrome.

CARDIAC ENLARGEMENT. The heart dilates in some cases. When it does, the dilatation is of a greater degree than that that is seen in infarction without failure.

ABNORMAL VENTRICULAR PULSATIONS. There are none, as contrasted with the localized area of diminished pulsation seen in seventy-five per cent of cases of infarction, if studied fluoroscopically or kymographically.

PULSE RATE. The slowness of the heart rate often is striking in acute benign pericarditis, as contrasted with a usual tachycardia in myocardial infarction.

BLOOD PRESSURE. The blood pressure sometimes falls to shock levels, with profuse, cold perspiration in both this disease and in infarction.

LABORATORY ABNORMALITIES

WHITE BLOOD COUNT. This count is much greater and lasts much longer in benign pericarditis than in infarction.

SEDIMENTATION RATE. This is invariably elevated, returning to normal in one to two weeks. Such may be the case in myocardial infarction also, but generally the elevation is higher in pericarditis and more prolonged.

SEROLOGICAL CHANGES. 1) Titers of the anti-streptococcal antibodies, anti-streptolysin O, and anti-hyaluronidase are not high enough to be within the rheumatic fever range during benign inflammation of the pericardium. Of course, the titers are normal in myocardial infarction. 2) The serum transaminase level is normal, whereas it is elevated in myocardial infarction.

E.C.G. CHANGES

Changes are apparently due to subepicardial myocarditis. They are distinctive and diagnostic, and are the most important of all the findings from a diagnostic standpoint. In acute stages, at the very onset, the ST segments become elevated in one or more leads. The elevation may occur in all leads or may be confined to limb lead 1 alone. Segments are concave, in contrast to convex or cove plane segments so often seen in infarction. After one or two days the ST segments become horizontal, though still elevated, and the T waves become lower in amplitude. Most important is the fact that the ST changes are in one direction. Reciprocal changes are not present as are present in infarction. Later, after about a week, T waves become inverted and may remain so for several months. This inversion is apt to occur in one or more leads, and often in all leads. QRS complexes are not affected, except in cases with pericardial effusion where they will be lower in amplitude. No Q wave changes are present, as are present in infarction. No AV conduction abnormalities are seen, as sometimes occur in infarction and in rheumatic heart disease. The ECG generally returns to normal in four to eight weeks. This is ordinarily not true in infarction, where the changes are frequently permanent.

TREATMENT

Bed rest and symptomatic medications are advisable. Either ACTH or adrenal cortical steroids produce great improvement within forty-eight hours. The temperature drops, while pain, malaise, anorexia, and general toxicity are replaced by a good appetite and a feeling of well-being, which sometimes borders on euphoria. Therapy with these drugs should be extended over a period of approximately two weeks, in gradually diminishing doses.

COURSE

Both in children and in adults, the disease lasts from three weeks to three months. With therapy as outlined above, the course may be materially shortened. Complete recovery can be expected, with the patient resuming his usual activity after all signs and symptoms have disappeared.

CONCLUSION

1) It is believed and now well recognized that acute benign pericarditis constitutes a distinct clinical entity of apparent unknown etiology.

2) If the above outlined signs and symptoms are carefully analyzed, no mistake should be made in differentiating this disease from acute myocardial infarction, which it often simulates, and from the other pericarditides associated with systemic infection.

3) A plea is made to make the proper diagnosis, in order to avoid the immediate and future restrictions that may and should be applied to many cases of myocardial infarction and other types of pericarditis associated with systemic disease.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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§

CHARITY HOSPITALS ECONOMICALLY UNSOUND

(*Guest Editorial*)

E. L. King, Administrator, Northeast Mississippi Hospital.

The reasons for establishing state charity hospitals in Mississippi, over one hundred years ago, passed with the era of dirt roads, the horse and buggy, and calomel. An analysis of the modern hospital system shows no place for such an institution. The present day finds us with a system of community hospitals unsurpassed by any state, every citizen within minutes of one of our modern community hospitals. A fundamental principle of the Hill-Burton Act, to bring adequate hospital care near the populace, has been most successfully demonstrated in our state-wide program.

A high standard of hospital care is given in this system of community hospitals. A survey shows them in the majority of the fully accredited hospitals in the state as evaluated by the Joint Commission on Accreditation. This is indicative of the fact that they have contributed substantially to higher standards in hospital care.

It seems inadvisable to construct charity hospital facilities at a cost of around $20,000.00 per bed. If this should be done there would be the operational cost of around $7,000.00 per bed per year. In many cases such a project would be a duplication of existing facilities now found in the community hospitals. It is evident that charity hospitals could not furnish a high standard of hospital care to the destitute of the state as economically as can be done with existing community hospitals.

The psychological and social impact on the patient with charity hospitals is worthy of consideration. The separation of the patient from his family physician and community is not conducive to good therapy. The social stigma attached to being admitted to a charity hospital serves no good purpose.

A much more feasible and economical way for the state to help charity patients with hospital care is apparent. The now inadequate plan administered by the Mississippi Hospital Commission should be modernized and revised. With a slight increase in appropriation, a more favorable per diem rate than the present $6.00 per day could be afforded to hospitals by the state for care of charity patients. Then following the national trend, explicit information should be given to all the people, that everyone must contribute toward their hospital care as they are able to do. This will help to avoid abuse and tend to devoid any such plan of socialistic aspect. As each citizen accepts his own responsibility to his utmost, the financing of hospital care for all people of the state becomes easily within the realm of possibility. With a little more money and a slight change in outlook there remains no problem worthy of concern.

It becomes evident that the need lies in the support of our present unexcelled community hospital system. The need for construction of state charity hospitals passed into oblivion with the turn of the last decade. Let's give a little more state assistance to financing hospital care for extremely low income citizens and be thankful for the community hospitals that now are prepared to provide this service.

THE NEW SYSTEM IS BETTER

In the depression years, as more efficacious means were developed for caring for the indigent sick, there remained only eight charity hospitals in the United States and Mississippi had five of them.

We still have five, counting the teaching hospital in Jackson. In the early days when our state had but a few able surgeons the charity hospital served quite well. But in the main, our charity hospitals have always been local hospitals. These old charity hospitals are as out of date as an ox wagon from a standpoint of social and financial economy to the people.

In keeping with legislation and a general understanding when the University Hospital was built, the old charity hospitals were to be closed. Under our system of fifty-odd new Hill-Burton hospitals being built, provision is made to take care of both pay and charity patients—ten per cent must be charity if needed. For economic and social reasons it is good to have all patients needing general medical care treated in the same facility. Even when the indigent may exceed ten per cent and more funds are needed for the indigent, big charity hospitals are not the answer to this service.

Accidental injuries are a daily part of medical practice. The larger percentage of these accidents occur near or in small towns, on farms and in homes. Time is a big factor in saving many of these cases and the local hospital is the place to give immediate care. Our best citizens at some time in life may require financial aid when sick. They deserve to have it along with their fellow citizens in their own home hospital where their loved ones may be with them without additional expense.

We have many indigent patients who should go to our teaching hospital for the service it can give them and the service they in turn can be to the medical student. It seems only fair that the funds available to the local hospital should go to aid such patients sent to Jackson. This plan would make available clinical material from every nook and corner of the state for our medical school.

We have a fine medical school in the making. We have the best hospital system in the nation underway. When utilized it will furnish the best medical service known at this time. It is foolhardy to try to go back to the old charity hospital system which has always been largely local in scope, largely political in control and has no claim on social and medical economy. Our present new progressive hospital system is workable without the state-owned charity hospitals and we should support and utilize the possibilities offered by the system.

PATTERSON HEADS MID-SOUTH

The sixty-eighth annual session of the Mid-South Postgraduate Medical Assembly, held in Memphis at the Peabody Hotel, registered more than five hundred practicing physicians for the course of lectures. The program was better than usual, the papers more practical.

Dr. Luke Nabers, Morristown, Tenn., presided as president, assisted by the vice-presidents, Drs. Max Roy, R. S. Moorehead, and William G. Stephenson. Dr. Max Roy was elected president-elect of the association at the close of the meeting. Dr. Thurman Crawford, re-elected executive secretary, will be assisted by a lay executive secretary for next session.

The visiting essayists were unusually cordial and brim full of interest.

The technical exhibitors were right on the job about seventy strong. Across the years they have been strong friends of the Mid-South, Dr. Gilbert Levy handling the exhibits.

President Luke Nabers was host at a delightful dinner for the past-presidents of the Assembly. Thirteen of the seventeen living past-presidents were present as follows: Drs. W. H. Anderson, Booneville, Miss., John G. Archer, Greenville, Miss., J. L. Dunavant, Ripley, Tenn., A. G. Hudson, Memphis, Tenn., F. L. Husbands, Blytheville, Ark., L. W. Long, Jackson, Miss., L. H. McDaniels, Tyronza, Ark., V. B. Philpot, Holly Springs, Miss., now of Memphis, Julian Price, Dyersburg, Tenn., H. T. Smith, McGehee, Ark., H. King Wade, Hot Springs, Ark., R. B. Caldwell, Baldwyn, Miss., Joe Verser, Harrisburg, Ark. Absent were: Drs. Frank Acree, Hoyt Allen, H. Fay H. Jones, and L. S. Nease. Mr. C. P. Loranz, Birmingham, incoming president Dr. C. W. Patterson of Rosedale, and vice-president Dr. William G. Stephenson, were guests.

Dr. Lawrence Long of Jackson organized the club. He is furnishing the certificates of membership. Dr. A. G. Hudson was named president of the club.

News and Comment

MSMA ANNUAL MEETING

We are now looking forward to our state meeting in Biloxi. Our Gulf Coast will be mighty pretty in the second week in May. For some years now the eyes of the nation have been turning on the Mississippi Coast as a delightful playground. It is our opportunity to combine pleasure with professional fellowship and study at this time.

Our state meeting is one that no doctor should miss if it is at all possible for him to attend. The scientific program will be good and there is much business to be attended to at the meeting. Make your reservation at the Buena Vista Hotel, Biloxi.

NORTHEAST MEDICAL SOCIETY

On Tuesday, March 12, the Northeast Mississippi Medical Society will meet in Starkville for its first quarterly session. Presiding over the meeting will be Dr. Lester Webb of Calhoun City. He is an able general practitioner in medicine and surgery. He is not only a good man and very useful in the medical profession, but he is a fine citizen busy rendering service for his town and community.

Dr. H. H. McClanahan is secretary of the society. He is very efficient and does much gratis work for the organization.

Dr. Hunter Scales is Starkville's veteran host. He has many fine qualities and does even more than his part as a liberal entertainer. Dr. Scales is an active member of the Fifty Year Club.

UNIVERSITY NEWS

Dr. G. E. Bittenbender, professor of anesthesiology at the University of Mississippi Medical Center, has been named an honor member of the American Society of Anesthesiologists, an award given for special contribution to the field of anesthesiology. Notice of the presentation was received Thursday.

A member of the Society for some years, Dr. Bittenbender is also a member of the Society of University Anesthesiologists, on the Board of Governors for the American College of Anesthesiologists and chairman of the Section on Anesthesiology of the Southern Medical Association.

The 44-year-old physician came to the University Medical Center when it opened in July, 1955. He was previously director of anesthesiology for the Veterans Administration Hospital in Houston, Texas, and associate professor of anesthesiology at Baylor University College of Medicine.

Dr. Curtis P. Artz has been chosen to present the eighth annual Dr. F. G. Thompson, Sr., Lectureship on Thursday evening, May 9, 1957, at the Thompson-Brumm-Knepper Clinic, in St. Joseph, Mo. Dr. Artz is associate professor of surgery at the University of Mississippi Medical Center, and was formerly Director of the Surgical Research Unit at Brooke Army Medical Center, Fort Sam Houston, Texas.

Dr. Artz is particularly interested in the use of plasma and plasma volume expanders as it pertains to the general practitioner and has this year published a book, "The Treatment of Burns," Saunders. His subject for this lecture will be "The Use of Parenteral Fluids in Disease, Trauma and Burns as Indicated in Daily Practice."

AGA

The American Goiter Association will meet in the Hotel Statler, New York, New York, May 28, 29, and 30, 1957.

The program for the three-day meeting will consist of papers and discussions dealing with the physiology and diseases of the thyroid gland.

For information, write John C. McClintock, M.D., secretary, 149½ Washington Avenue, Albany 10, N. Y.

SOUTHEASTERN SURGICAL CONGRESS

The twenty-fifth annual assembly of the Southeastern Surgical Congress will be held at the Vinoy Park Hotel, St. Petersburg, Fla., April 1, 2, 3, 4, 1957.

For information, write Dr. B. T. Beasley, secretary-director general, the Southeastern Surgical Congress, Atlanta 3, Ga.

SOUTHERN RADIOLOGICAL CONFERENCE

A joint meeting of the Alabama and Mississippi Radiological Societies held at the Grand Hotel, Point Clear, Ala., on January 26 and 27, 1957, organized a group of radiologists from Mississippi, Alabama and northwest Florida, and named it the Southern Radiological Conference. Its purpose is professional education and recreation. Charter members are being accepted up to June 1, 1957. Properly qualified radiologists may apply to the secretary-treasurer for membership. Dues are $10.00 per year.

Officers: Chairman, Dr. Tom B. Dominick, Vicksburg, Mississippi; vice-chairman, Dr. William D. Anderson, Tuscaloosa, Alabama; secretary-treasurer, Dr. Marshall Eskridge, Mobile, Ala.

The next meeting will be January 24-26, 1958, at the Grand Hotel, Point Clear, Ala.

SILVER BEAVER AWARD

Dr. Erie P. Robbins of Brookhaven is shown receiving the Silver Beaver Award for distinguished service from Dr. H. C. Ricks, president of the State Medical Society.

The award is the highest recognition given by the Boy Scouts of America to a volunteer leader. The presentation was made at a recent Scout Leaders' dinner of the Andrew Jackson Area Council at Jackson, Mississippi.

Dr. Robbins and Dr. Ricks have taken an active interest in the Boy Scout program for many years.

The citation that accompanied the award to Dr. Robbins was as follows:

> The recipient was born in Mississippi and has devoted his life to the people of his native state. After completing his formal education he married and moved to Brookhaven where he has served actively in all civic affairs.
>
> He is recognized as one of the leaders in his chosen profession. He is a Mason and a Shriner; an active member of the Presbyterian Church, and a member of a leading service club.
>
> He has served as Scoutmaster for more than eight years and has also served as Merit Badge Counselor, District Committeeman, Chairman of Council Committee and member of the Council Executive Board. He has rendered broad service to Scouting at two National and one International Boy Scout Jamboree.
>
> On behalf of the National Council of the Boy Scouts of America it is my pleasure to present the Silver Beaver Award for distinguished service to boyhood to Dr. Eric P. Robbins of Brookhaven.

Intensive spring courses in clinical hypoxia are announced for April 5-6, May 3-4, and June 7-8.

These courses have been presented monthly in New York City as well as in Southern, mid-Western and Western cities. More than 1000 physicians and dentists have received personal instruction in exposing the death zone of the respiratory tract.

WORLD CONGRESS OF GASTROENTEROLOGY

The World Congress of Gastroenterology, sponsored by the International Society of Gastroenterology, is to be held in Washington, D. C., May 25-31, 1958, at the Sheraton Park Hotel. All physicians interested in gastroenterology are cordially invited to attend. The chairman is Dr. Harry L. Bockus and anyone desiring information regarding the program, housing, etc., may direct all correspondence to Dr. H. M. Pollard, secretary general.

The major subjects to be considered at the scientific session are as follows: peptic ulcer, malabsorption and sprue-like syndromes, nutrition and its effect on the liver and pancreas, intestinal infection and infestation, cancer of the stomach.

DR. PENNINGTON PRESENTS PAPER

At the Working Conference on Status and Development of Clinical Drug Evaluation Reports held in Washington, D. C., on January 14, 15, and 16, Dr. Veronica M. Pennington, Whitfield, presented a working paper on "The Selection of Patients and the Description of Patients Before and After Psychopharmacotherapy."

FIRST POSTGRADUATE COURSE IN TRAUMA

The first postgraduate course in trauma will be sponsored by the Chicago Committee on Trauma of the American College of Surgeons, April 10, 11, and 13, 1957, in Chicago at the John B. Murphy Auditorium. Fifty-three outstanding teachers from the four medical schools of Chicago will present the three- and one-half-day course in fractures and other trauma.

PULMONARY—(continued from page 280)

7. Dresslner, S. H.; Anthony, E. M.; Russell, W. F., Jr.; Grow, J. B.; Denst, J.; Cohn, M. L., and Middlebrook, G. — "Ambulation of Patients with Pulmonary TB Under Protection of Chemotherapy"—American Review of TB, 70: 1030, 1954.
8. Muschenheim, C.—"Aschema of Treatment in TB"—American Review of TB, 72: 1, 1955.
9. Cabiran, L. R., and Goldstein, M.—"Artificial Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis"—Diseases of the Chest, 29: 202, 1956.
10. Daniels, A. C.—"A Method of Biopsy Useful in Diagnosing Certain Intrathoracic Diseases"—Diseases of the Chest, 16: 360, 1949.
11. "Lesions in Chronic Pulmonary Emphysema"—American Review of TB, 68: 24, 1953.
12. "Treatment of Chronic Pulmonary Emphysema"—American Review of TB, 69: 915, 1954.
13. "Bronchodilators and Intermittent Positive Pressure Breathing"—Diseases of the Chest, 28: 309, 1955.
14. Smith, D. T.—"Fungus Diseases of the Lungs"—Thomas, 1947.

FIFTY-YEAR CLUB BIOGRAPHICA
JAMES ANDREW McDEVITT

James Andrew McDevitt, son of Joseph D. and Abbie McDevitt, was born July 8, 1874, at Paulding, Mississippi.

In 1906, he was graduated from Mobile Medical College and did special work at Tulane University and in St. Louis, Missouri.

After graduation, Doctor McDevitt practiced in Shubuta, in Gulfport from 1924 to 1934, then returned to Shubuta where he is presently located.

Doctor McDevitt enlisted in the Medical Corps of the Army in 1918 and was commissioned First Lieutenant and later Captain. He served in the Medical Reserve Corps for years, holding commission as lieutenant colonel. He also served as instructor in medicine, Cornell Medical College, and Assistant Attending New York Hospital.

Doctor McDevitt served as local surgeon for the M. and O. Railroad and is currently serving in this capacity for the G. M. and O. Railroad. He has served as a member of the Town Board, Steward of the Methodist Church, and Worshipful Master of Shubuta Lodge. He is a member of the Woodmen of the World, Masonic Lodge, and American Legion.

On January 10, 1957, Doctor McDevitt was honored by being made a lifetime member of the Fifty Year Club.

For many years, Doctor McDevitt has served his fellowman faithfully and well and has brought credit to himself and to his profession by his unselfish devotion to duty.

Dr. Chester Farmer, president of the South Mississippi Medical Society, wrote on February 4 as follows:

"Due to the fact that Dr. James A. McDevitt was a heart patient for some time in the Jones County Hospital, I gave him his fifty-year certificate January 10, 1957, with the understanding that a formal presentation would be made in the very next meeting of the South Mississippi Medical Society that he attended."

Hulon Lott, M.D., announces the opening of his office at 109 Phillips Avenue, Baton Rouge, Louisiana. Practice limited to endocrinology and metabolism. Telephone 8-1533.

DEATHS

DR. G. A. WALKER, SR.

Funeral services were held January 26 for Dr. Chester Arthur Walker, Sr., 66, who practiced medicine in Gulfport for 25 years. He died at his home.

Survivors include his widow, three sons, and two daughters.

Dr. Walker's medical education was obtained at the University of Tennessee, Memphis. He graduated in 1915.

DR. JOHN D. WILLIAMS

Services for Dr. John Wesley Williams, 86, who died January 22 at Shands Hospital in New Albany after a heart attack, were held at Ingomar Methodist Church. Burial was in the Ingomar Cemetery.

Dr. Williams was born in Lee County and received his medical education from Memphis Hospital Medical College.

DR. P. G. GAMBLE

Dr. Paul G. Gamble, 74-year-old surgeon and member of the State Board of Health, died February 8 after a heart attack.

Dr. Gamble was one of three physicians who founded the Gambill Brothers and Archer Clinic in 1915. The other two were the late Dr. Hugh A. Gamble and Dr. John Archer.

Dr. Paul Gamble was past president of the Mississippi State Association and Delta Medical Society, was a member of the Southern and American Medical Associations, the southeastern section of American Urological Association, and a fellow in the American College of Surgeons.

A native of Saltillo, Dr. Gamble studied at Vanderbilt University, the University of Tennessee, the University of Texas and Tulane University and interned at Touro Infirmary at New Orleans.

He was active until his heart attack, which felled him shortly after he performed an operation.

Survivors include his son, Paul Gamble, Jr., his daughter, Mrs. Dudley Conley Miller; and a grandson, all of Greenville; and two sisters, Mrs. Joe McInnis of Handsboro and Mrs. Harris Crenshaw of Guntown.

DR. J. F. LEWIS

Dr. James F. Lewis, 47, prominent Columbus physician, was found with a fatal bullet wound in his chest Friday afternoon, February 15, in the bathroom of his apartment. A coroner's jury fixed cause of death as suicide.

Coroner James Thomas said Dr. Lewis left his office at Doster Hospital at noon for his apartment. His uncle, John Sanders of Graymont, Ill., who was visiting him, had just left the apartment for a walk when he heard a shot. Sanders summoned a physician, but Dr. Lewis died a few minutes after medical help arrived.

A .32 caliber revolver was in the bathroom near where Dr. Lewis was found.

The physician's nurse told the coroner that Dr. Lewis had been in low spirits during the morning. He had been on the staff of Doster Hospital since 1946.

Survivors include his wife; two sons, Jed and Jim Lewis, Columbus, and his mother, Mrs. Herbert Lewis, Sr., of Fayetteville, Ark.

The Office Detection of Gynecologic Malignancies*

CLYDE L. RANDALL, M.D.
Buffalo 22, New York

We know it is important to find cancer early, when the lesion is still in a curable stage. There are no new serologic tests or photoelectric gadgets by which we can make the diagnosis earlier or easier, with less inconvenience to the patient and with less expenditure of the doctor's time and effort. We know, too, that while malignancies of the cervix, fundus, ovary and vulva occur frequently, that all gynecologic cancers except those arising in the ovary are today being cured in more than half the cases, simply because so many are being discovered in a relatively early stage. Since we know all this, why do we again talk about the means of detecting gynecologic malignancies in your office—and in mine? Why? Simply because *knowing* what to look for and what to do isn't enough. Patients are not cured merely by what we know about their condition, nor will they be benefited by what we could tell them about the detection of uterine cancer, for instance; indeed they will benefit only by what we actually *do* for them when they come for help, and particularly by what we do about the possibility that they may have cancer. The investigation we make must be as adequate as our knowledge of the possibilities. Well might Confucious say—"First we must look, before perhaps we see. . . ."

There is nothing new about the procedures to be described. I do so only to remind you how important it is that we keep using such methods, day after day, in order to make certain that the cancers in our practice will be found in an early and curable stage.

THE PROBABILITY OF GYNECOLOGIC CANCER — IN A LIFETIME

It is not over-emphasis to remind ourselves to look for signs of cancer whenever women are examined. Table 1 indicates the probability that each female faces a 25 per cent chance of developing some type of malignancy during her lifetime.

The figures in Table 1 are based upon the rates of cancer occurrence in the State of New York—exclusive of New York City. In so-called Upstate New York, we believe that the population is fairly stable, and according to the 1950 U. S. Census, approximately 2½ million adult females live in the reporting "upstate" area. Since January 1, 1940, all cases of malignant disease have by law been reported to the Bureau of Cancer Control in Albany by the laboratory making the histologic diagnosis. We feel, therefore, that the figures quoted regarding the probability that women will develop gynecologic cancer, based upon the reported occurrence of cancer in Upstate New York during the years 1949, 1950 and 1951, with the 1950 census figures to indicate total population, are as accurate and dependable as we can obtain at the present time.

TABLE 1
Probability of Developing Cancer from Birth on by Sex and Site
Based on Cancer Morbidity Reports
New York State, exclusive of New York City; 1949-1951*

FEMALES	
Site	*Probability (in per cent)*
All Sites	24.990
Breast	5.544
Cervix uteri	2.319
Fundus uteri	1.600
Ovary	0.993
Vulva	0.199

*From Trends in Cancer Incidence, Mortality and Probability in the State of New York, by Paul R. Gerhardt, M.D., and Vincent H. Handy, M.D., Bureau of Cancer Control, New York State Department of Health, as presented to The Ninth Annual Meeting of the Coordinators of Cancer Teaching, Detroit, Michigan, June 3, 1956.

According to the most recent[1] New York figures, 5.5 per cent of women are now developing carcinoma of the breast, while 4.9 per cent of all women develop a malignancy of the uterus or adnexa. A total of 10.4 among each 100 women apparently destined to develop some form of gynecologic cancer suggests that approximately 40 per cent of all the malignancies women eventually develop will be found either in the breast or pelvis.

Today we frequently hear the statement that—"we are seeing more cancer because more individuals live long enough to develop their cancer." It is important to remember, however, that from the standpoint of the individual, the older he or she becomes the *fewer* chances there are per 100 that he or she will eventually develop the malignancy. This is particularly apparent in Table 2[2] indicating the probability of the individual developing a gynecologic malignancy after the specific age indicated.

Note that after the age of forty, for instance,

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*Presented before the sixty-eighth annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tennessee, February 12-15, 1957.

TABLE 2

PROBABILITY OF DEVELOPING CANCER FROM INDICATED AGE ON, FOR SELECTED SITES BASED ON CANCER MORBIDITY REPORTS, NEW YORK STATE, EXCLUSIVE OF NEW YORK CITY, 1949 - 1951*

(Probability Expressed in Per Cent)

	Probability of Developing Cancer After Indicated Age per 100 Women					
AGE	ALL SITES	BREAST	CERVIX	CORPUS UTERI	OVARY	VULVA
30	23.701	5.369	2.252	1.545	0.963	0.187
10	23.767	5.320	2.270	1.554	0.959	0.188
40	23.167	5.222	2.009	1.549	0.930	0.189
45	22.481	4.948	1.794	1.524	0.884	0.186
50	21.534	4.621	1.557	1.426	0.820	0.183
65	16.931	3.469	0.900	0.842	0.498	0.185
75	12.571	2.512	0.555	0.481	0.247	0.136

From: *The Probability of the Occurrence of the More Common Types of Gynecologic Malignancy* by Clyde L. Randall, M.D., Paul R. Gerhardt, M.D., Vincent H. Handy, M.D., and Arthur S. Kraus, M.D., reported from the American Journal of Obstetrics and Gynecology, 68:1380, November, 1954.

TABLE 3

ANNUAL AVERAGE CANCER INCIDENCE* RATES,** FEMALES BY AGE AND SITE, NEW YORK STATE, EXCLUSIVE OF NEW YORK CITY, 1949-1951

AGE IN YEARS

Site	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Breast	1.05	5.34	15.47	38.36	77.30	96.80	108.44	135.33	161.16	188.45	245.48	274.54	307.68	337.52
Cervix uteri	2.23	8.54	21.16	36.24	50.32	56.60	56.56	58.78	57.93	62.90	50.52	56.68	48.23	58.63
Corpus uteri***	.39	1.30	1.33	5.75	11.6	28.0	41.56	56.49	57.93	57.18	54.93	52.25	44.37	38.03
Ovary	...	2.13	3.14	7.00	13.22	18.37	27.66	31.33	33.10	37.04	43.06	32.53	24.11	28.52
Vulva	....	.47	.12	.50	1.48	1.66	2.03	1.94	3.72	9.45	13.56	14.29	19.29	15.85

* Includes cases reported only by death certificate.
** Rates are per 100,000 females per 1950 census.
*** Excludes "uterus unspecified."

From: *The Probability of the Occurrence of the More Common Types of Gynecologic Malignancy* by Clyde L. Randall, M.D., Paul R. Gerhardt, M.D., Vincent H. Handy, M.D., and Arthur S. Kraus, M.D. Reported from the American Journal of Obstetrics and Gynecology, 68:1380, November, 1954.

the chances of a carcinoma of the cervix are 20 per 1000, whereas 15 women per 1000 will develop a carcinoma of the body of the uterus and 9 per 1000 a malignancy of the ovary. After the age of fifty, 15 women per 100 will develop a carcinoma of the cervix, 14 per 1000 a carcinoma of the body of the uterus and 8 per 1000 a carcinoma of the ovary. After the age of 65, however, only 9 women per each 1000 will develop a carcinoma of the cervix, nearly an equal number will develop a carcinoma of the fundus, and ovarian malignancy will develop in only 5 among each 1000 women after their sixty-fifth year. Obviously we are wrong when we facetiously say that we will all develop cancer if we live long enough. The figures even suggest that there *are* compensations for growing older, for every year we pass up some of our chances of having cancer, just as each year we have escaped a statistical chance of being hit by a car, a stray bullet—or a guided missile.

While it may be helpful to remember data indicating the individual woman's chance of eventually developing some sort of gynecologic malignancy, it is important to remember that the figures in Table 2 indicate the probability that the individual will *at some time during her lifetime* develop a certain type of malignancy. Such figures regarding probability much not be interpreted to mean that any time we examine 1000 women over the age of forty we can expect to find 20 carcinomas of the cervix and 15 with carcinoma of the uterine fundus plus 9 more with a malignancy of the ovary. These figures do mean, however, that if we would continue to examine 1000 women every year after their fortieth birthday, that at some one of those annual examinations we would eventually find, among the 1000 women, a total of 20 who had developed a carcinoma of the cervix, while 15 others would someday develop a carcinoma of the corpus, and only 9 among the 1000 would be likely to develop a malignancy of the ovary.

THE POSSIBILITY OF GYNECOLOGIC CANCER — IN ANY ONE YEAR

The number of cases of cervical carcinoma that become recognizable each year are generally referred to as "the annual incidence rate," which simply expresses the number of new cases of a particular type of cancer that can be expected to develop in any one year.

Table 3 indicates, for instance, that only 5 or 6 new cases of carcinoma of the cervix will be found each year among women over forty years of age, per 10,000 apparently normal women examined per year. Carcinoma of the corpus will not be found even that infrequently unless we are examining women between the ages of fifty-five and eighty years of age, but among such older women the annual occurrence rate of adenocarcinoma also approximates 5 to 6 new cases per 10,000 women each year. Carcinoma of the ovary is a less likely threat, and among women thirty to eighty years of age the rate of annual occurrence is from 3 to 4 new cases per 10,000 women per year.

It must be remembered, as these New York figures are considered, that all such figures are based upon the annual incidence, i.e., the rate of occurrence, of new cases of gynecologic cancer that have progressed to a stage causing symptoms, indicating examination, a clinical suspicion and a biopsy confirming the diagnosis. It has recently become evident that efforts to discover all the gynecologic cancer developed to a *detectable* stage by mass cytologic screening, of the 2½ million women in the upstate New York population for instance, would undoubtedly reveal many more cases of uterine cancer at any one time, than these 1950 figures indicate should have developed within the year the patients were examined.

We do not believe, however, that the annual rate at which new cases of gynecologic cancer actually develop in New York State can be very much higher than these 1950 figures indicate. The number of deaths due each year to each type of gynecologic cancer indicated in Tables 1 and 2 suggest that the New York State figures regarding lifetime probability, as well as the annual rates of occurrence, must be approximately correct for at least that section of the country.

If each year, thousands of women must be examined if we are to find the few who are just developing a new, clinically early and curable carcinoma, obviously the detection of early cancer becomes everybody's problem. Neither cancer detection centers nor specialists' offices are going to see such numbers of women every year—and it becomes evident that every physician's office must function to some degree as a cancer detection center.

THE DETECTION OF CERVICAL CANCER

At the present time it seems evident that the prognosis for the patient with carcinoma of the cervix continues to depend primarily upon our ability to find such cases at the earliest possible stage of their development.

In this regard, the Memphis community will long be remembered for your massive effort at screening an entire population for uterine cancer by vaginal cytology[3]. The organization, the cooperation and above all, the amount of effort evident in your project has been widely appreciated. Each report of your study has been eagerly awaited by the many interested throughout the country. Among other things, you have seemed to demonstrate quite conclusively that at any one time there are perhaps ten times as many women in our population with uterine cancer in a *detectable* stage, as there are women with uterine cancer advanced to a stage of producing symptoms.

In every such large screening effort the noticeably lowered incidence of detectable lesions "the next time 'round" seems to add support to the suspicion that at least cervical cancer must in many instances exist in a detectable stage for several years.

Whenever the cytologic method of detecting cervical carcinoma has been employed, a chief problem concerns the management of the increasing number of cases of the carcinoma in-situ stage or Stage O cervical carcinoma. Our own experience has been typical. Whereas during the years prior to 1947, only 3 per cent of the cervical cancer we were finding would now be classified as the Stage O or the in-situ stage of cervical carcinoma, by 1950 we were detecting 13 per cent of cervical carcinoma in the non-invading or in-situ stage, and in the past few years we have been finding as many cases of cervical cancer in-situ, in the non-invading stage, as we now recognize after established invasion is evident.

When the smears are reported positive but the cervix looks normal, we continue to feel it is a waste of time to take random or quadrant biopsies. When there is no local lesion, or when there is an extensive area of erosion from which a positive smear has been obtained, a punch biopsy or biopsies reported to show no evidence of carcinoma cannot be accepted as evidence that the smear was wrong; it only means that the biopsy missed the area of carcinoma accounting for the positive smear. Hence, when the smear is positive and the cervix looks negative, we prefer to remove the entire circumference of the cervix around the external os by a superficial amputation or ring biopsy of the cervix. However, even before we take such a ring biopsy or do a superficial amputation of the cervix, we take four separate smears from the four quadrants of the cervix, and in this way usually recognize one area that seems to be the source of the cancer cells. Orientation of the amputated cervix or ring biopsy specimen may be simplified for the pathologist by a suture placed in the midline anteriorly before the specimen is amputated. This simple aid may save the pathologist many sections in the non-suspected cytologically negative quadrants of the cervix.

THE DETECTION OF CORPUS CANCER

Carcinoma of the cervix is, however, by no means our only problem. The fact that carcinoma of the corpus and carcinoma of the cervix are being detected with about equal frequency should remind us, whenever irregular bleeding during preclimacteric years or after the menopause occurs, to rule out the possibility of cancer in the fundus when the cervix looks normal. It is well to remember that adenocarcinoma of the fundus is not only *not rare*, it is not easily cured.

Comparing the number of new cases of carcinoma of the cervix, fundus and ovary per year with the number of deaths due each year to each type of tumor clearly shows, that at least in the State of New York, while 50 per cent as many deaths due to cervical carcinoma occur each year as there are new cases discovered each year, that we are not doing much better with our treatment of carcinoma of the fundus.

The reported results of the treatment of carcinoma of the fundus clearly indicate that again early diagnosis is of the utmost importance. As a rule we cannot see or feel anything about the uterus that makes us suspicious that the woman has developed adenocarcinoma. For years about our only means of recognizing such cases early has required a prompt and adequate investigation of a) abnormal menstruation, particularly among women over forty and during the climacteric years and b) post-menopausal bleeding. We are convinced that the majority of women over forty do not experience increased bleeding before cessation of their periods. It has been our experience that any increased bleeding during the so-called preclimacteric years often means pathology. When a number of women reporting increased bleeding are examined, many of them will be found to have pathology indicating hospitalization.

In addition, for years we have been sending into the hospital for diagnostic curettage approximately 35 per cent of the women we see "over forty" who are complaining of increased bleeding, because they have *no evident pathology* to account for such bleeding, and a diagnostic curettage is considered advisable. Among that group we have been detecting adenocarcinoma of the fundus in approximately 9 per cent of the women thus subjected to curettage. In other words, among the women over forty that we are sending into the hospital for a diagnostic curettage, one among each 11 is found to have a carcinoma to account for her irregular bleeding. So long as increased or irregular bleeding means hospitalization and curettage however, too often we are all guilty of procrastination. The chance of carcinoma of the fundus among women with increased bleeding before their menopause, is certainly not more than something approximating 9 per cent of 35 per cent (or 1 in 300) when they first report such bleeding. With that probability in mind, months sometimes slip by while the doctor makes up his mind that a diagnostic curettage is indicated, or before the patient agrees to follow the advice given—or both.

The employment of vaginal smears and the cytologic method has increased our ability to detect adenocarcinoma of the uterus *before* we send these women into the hospital, and I am sure that we should now actually try to detect signs of adenocarcinoma every time we examine a woman over forty.

Whenever there is a plug of mucus or débris at the cervical os, in an effort to detect adenocarcinoma we make a smear of any such débris even before we make a smear along the mucocutaneous junction of an erosion, if the patient has an erosion. In other words, we often take a smear of any débris in the opening of the cervical canal with the possibility of diagnosing adenocarcinoma of the fundus in mind, while on the same patient we take another spatula and make another smear of the cells along the muco-cutaneous junction in an effort to pick up an early squamous cell carcinoma of the cervix.

Whether there is or is not a plug of mucus or débris at the external os, still with the possibility of adenocarcinoma of the uterus in mind, insert a sterile sound into the uterine cavity, the so-called Clark test, and smear any slight discharge that follows withdrawal of the sound. More recently, insertion of an aspirating cannula into the uterus has been employed as a means of obtaining endometrial material for cytologic study. So long as such methods are regularly employed, we believe we will rarely miss even the earliest carcinoma in the uterine cavity.

Anticipating that the cytologic method would miss some of the carcinomas arising in the endometrium, however, at the time we started taking vaginal smears we also started taking endometrial biopsies in the office. Such a biopsy is particularly indicated whenever we think the circumstances suggest the probability of an adenocarcinoma in the uterus. In the last eight years we have actually employed endometrial biopsy in the office in well over 1000 cases. We believe it is important to remember that in four of the last 43 cases of adenocarcinoma encountered in office practice, an adenocarcinoma of the fundus was thus recognized on routine pelvic examination *before* the patient had experienced appreciable bleeding, by employment of nothing other than these very methods of trying to detect adenocarcinoma that we have just described. So long as we employ such efforts to detect cancer in the office we believe that a minimum of delay is likely to occur, and that the results of our treatment of adenocarcinoma will improve in direct proportion to the increased number of cases discovered in an early stage.

THE DETECTION OF OVARIAN CANCER

Experience gained by routine pelvic examination and the recognition of the earliest stages of cervical and endometrial malignancy have changed some of our ideas regarding the life cycle of pelvic malignancies.

It now seems evident that at least cervical carcinoma may exist for years in a histologically demonstrable but non-invasive and clinically non-appreciable stage. It also seems apparent that at any time during those years such lesions if detected, can be effectively treated and relatively easily cured. Ovarian carcinoma is quite another matter and the problem of detection is somewhat complicated by the fact that whenever enlargement of the ovary is evident on examination, the patient's age must be taken into consideration.

When the woman is younger, dysfunctional enlargements of the ovary are more likely to be found when menstrual irregularities are reported. The tendency for such non-neoplastic cystic ovaries to undergo spontaneous regression is well known. Re-examination after a few weeks is the only way we can reach a preoperative decision as to the probable nature of the smaller ovarian tumors.

As a general rule therefore, when cystic-feeling ovaries no larger than 5 or 6 cm. in diameter are first discovered in a patient less than forty years of age, they should be regarded as dysfunctional until additional observation indicates a true neoplasm. Even in younger women, when ovarian enlargement is progressive or has been observed to persist throughout several menstrual cycles, the presence of a true neoplasm seems evident. We certainly believe that laparotomy *is indicated* as soon as neoplastic enlargement of the ovary is unmistakable.

Dysfunctional enlargements are not likely in older women however and certainly are not to be expected after the menopause. Careful palpation of the ovaries is particularly important when postmenopausal atrophic changes make the ovaries more difficult to outline. In such older women, any distinctly rounded, firm or elastic-feeling ovary, even as large as a golf ball, should be regarded with apprehension.

Re-examination under anesthesia is advisable, with the patient properly prepared, and laparotomy is indicated if the impression of appreciable ovarian enlargement seems confirmed by examination under anesthesia. In most instances, we have little time in which to find a malignancy of the ovary while it is still in an early stage of development. Nevertheless, we should be making an effort to find carcinoma of the ovary whenever we are examining women whose discomfort suggests pelvic pathology. It is equally important, however, to remember that an early ovarian malignancy may be found when the woman has no pelvic complaints. For that reason, particularly when the patient is over forty years of age, laparotomy seems indicated to determine the character of even suspected enlargements of the ovary. Even then, the chances of discovering an early ovarian malignancy is admittedly small. Remembering that not more than three women among each 10,000 over forty can be expected to develop a carcinoma of the ovary in any one year, and since we have reason to believe that in a majority of cases, ovarian malignancy becomes inoperable in less than a year's time, we must admit that even among each 10,000 women who might be examined every year, we would be likely to find only one of the three ovarian malignancies developing among them each year while it was still in a clinically early stage of its development. Small wonder then, that the advisability of removing the ovaries prophylactically when hysterectomy is indicated in women approaching the age of their menopause, has become a matter of increasing interest. Obviously this is a question beyond the scope of the present discussion, but we might well recognize that even if women are examined every year, there seems but slight chance of discovering a malignancy of the ovary in an early, favorable stage of its development.

THE DETECTION OF VULVAR CANCER

Pelvic examination should not be omitted simply because women are older. The probability of developing cervical carcinoma during the years after a woman reaches sixty-five are but 9:1000 as compared to a probability of 18:1000 at age forty-five. In like fashion the chances of malignancy beginning in the uterine fundus decreases from 15:1000 after forty-five years to 8:1000 after sixty-five. We should not forget, however, that the probability of carcinoma of the vulva approximates 2:1000 until women are more than seventy years of age.

Malignancy of the vulva might well be suspected when pruritis or any vulvar discomfort is reported by older women. Markedly atrophic vulvar skin with fissuring, any areas suggesting leukoplakia and particularly any area showing ulceration or suggesting induration should be regarded as an indication for biopsy. In many instances, simple vulvectomy is a more satisfactory procedure, because it minimizes the danger of missing an area of early carcinoma, and by removal of all affected areas, is followed by a greater degree of symptomatic improvement than is likely with other management.

In conclusion, we would emphasize the importance of remembering that each year among each 10,000 women over the age of forty-five in our respective communities, less than ten will develop a carcinoma of the cervix, probably an equal number a carcinoma of the uterine fundus, and but 2 or 3 others will develop a malignancy of the ovary. To find so few needles in each year's haystack, many doctors must keep examining many women or we will not find the ones with gynecologic cancer in a favorably early stage of their malignant disease.

While we see no reason now to hope that we can soon prevent the occurrence of gynecologic cancer, if we make continued efforts to recognize each case early, we certainly can reduce the number of deaths due to those easily detected and frequently curable types of malignancy. Simply by such continued effort to *find cancer early*, the number of deaths due to malignancies of the uterus were actually decreased in New York State for instance, from 31 deaths per 100,000 women per year in 1932 to 20.5 deaths per 100,000 women per year just 20 years later.

The Memphis experience with mass screening of the population in an effort to detect uterine cancer is inspiring and convincing. It is evident that even before the day when we shall have quicker, easier means of recognizing the patient with cancer, progress is being made and lives are being saved, simply by the consistent and conscientious employment of diagnostic procedures rapidly becoming available to us all.

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Just as an institution is the lengthened shadow of a man, so may a man and his life be the lengthened shadow of an idea. If the man be good and strong and wise, so with the institution. If the idea be sound and worthy of survival, it will endure and grow, and lend its strength to the man and to the institution which he builds.

Colon and Rectal Cancer*

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CARCINOMA of the colon and rectum are considered, relatively, one of the less malignant tumors of the many types of cancer. Five-year survival rates are generally quoted between 50 and 60 per cent with many reported series being higher. These groups, unfortunately, refer to selected cases and when all patients with carcinoma of the colon and rectum are considered, the five-year survival is actually nearer 20 per cent. In view of this discouraging rate, a complacent attitude is hardly justifiable.

INCIDENCE

The various large statistical surveys on the incidence of cancer and the site involved show malignant colon and rectal tumors to be one of the most common types seen. In this group, the most frequent site is the rectum, the sigmoid second and the cecum third. In our own series, 53 per cent were in the rectum, 20 per cent in the sigmoid and 9 per cent in the cecum. The incidence by sex is usually higher in men. The average age in most reported series is 58 to 60 years. Well over half of the cases occur between the ages of 50 and 70 (Table I). Note has been made at times that these tumors, particularly rectal, are infrequent in the colored race. Almost 20 per cent in our series were colored (Table II). These patients, since most of them were referred, represent a certain degree of selectivity. As the rate of admissions for colored was one in four and the rate for colon and rectal cancer one in five, some indication of occurrence by color may be inferred.

TABLE I — AGE DISTRIBUTION

10-20	.6%	51-60	25.8%
21-30	3.3%	61-70	29.6%
31-40	9.6%	71-80	11.6%
41-50	18.0%	81-90	1.5%

TABLE II — SITE, SEX AND RACE
(Percentage)

	Male	*Female*	*White*	*Colored*	*Total*
Right Colon	9.4	7.3	14.3	2.4	16.8
Left Colon	13.0	16.9	25.1	4.8	29.9
Rectum	27.1	26.3	41.5	11.9	53.4
Total	49.5	50.5	80.9	19.1	

PREDISPOSING DISEASES

The role of adenomatous polyps of the colon and rectum in the development of carcinoma is well known. The exact percentage of polyps which become malignant or the percentage of carcinomas which arise on the basis of adenomatous polyps are difficult if not impossible to determine. Studies such as those by Helwig[1], Bacon[2] and others would suggest that adenomatous polyps are frequently the site of carcinoma. The polyps within view through sigmoidoscope present no difficulty in diagnosis whereas colon polyps require painstaking radiologic survey. The latter seems justifiable in view of the excellent preventative results of removal by colotomy shown by Deddish[3], Bacon and Peale[4], Judd and Carlisle[5], and others. Familial polyposis has long been known to terminate almost inevitably in carcinoma of the colon, so that total or subtotal colectomy is indicated for these patients before malignancy develops.

The incidence of carcinoma of the colon and rectum in patients with chronic ulcerative colitis is not definitely known as no large group has been followed to death. The reported series would suggest that the incidence is about 5 per cent in patients who have had ulcerative colitis over five years. Certain aspects of this problem appear well established: a) the incidence of carcinoma increases with the duration of ulcerative colitis, b) the age at which the malignancy develops is lower, c) the carcinoma is difficult to diagnose, d) the malignant change is frequently multicentric, e) the malignancy is of high grade, and f) quiescent ulcerative colitis, ileostomy or subtotal colon resection offer no protection against malignancy.

SYMPTOMS

The symptoms of carcinoma of the colon and rectum are well established and can be briefly stated as abdominal pain, change in stool and change in bowel habit. The five most frequent symptoms seen in our series are summarized in Table III according to right colon, left colon or rectum. The right colon includes cecum, ascending and hepatic flexure; the left colon is transverse, splenic flexure, descending, and sigmoid; the rectum includes the rectosigmoid junction.

Certain differences in the right and left side of the colon are reflected in symptomatology. The right side of the colon is anatomically larger than the left; the fecal stream is liquid on the right where the function is absorption and is solid or semi-solid on the left where storage occurs; tu-

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TABLE III — SYMPTOMS
(Percentage)

Right Colon		*Left Colon*		*Rectum*	
Pain	73	Pain	65	Melena	81
Melena	31	Melena	54	Constipation	39
Weakness	29	Constipation	20	Diarrhea	27
Mass	19	Diarrhea	17	Pain	26
Nausea	18	Distension	16	Tenesmus	22

mors on the right tend to be bulky papillomatous growths while on the left ulcerative, encircling, stenosing carcinoma is the rule. Obstruction is therefore more frequent in lesions of the left side of the colon so the symptoms of cramping abdominal pain, excess gas, distension and constipation are seen along with diarrhea (frequent small stools), mucus and blood in the stool. Rectal lesions in addition may give tenesmus, aching rectal or perineal pain, a feeling of incomplete emptying, change in caliber of the stool, and urinary symptoms. On the right side, abdominal pain, change in bowel habit and stool are common but two groups of patients with lesions in the right colon merit special comment. The main complaint in one group is weakness, a manifestation of the severe degree of anemia which may develop. In our series, nearly a third had weakness as a major symptom, and over a third had less than nine grams of hemoglobin, compared to about 12 per cent for the left colon and rectal lesions. Unexplained weakness and severe secondary anemia therefore requires consideration of a carcinoma of the right side of the colon. The last group are those who complain of an abdominal mass. About 5 per cent of the patients will feel their own tumor prior to any other major symptom, and 20 per cent will feel the mass before coming to the hospital.

An appreciable number of patients, mainly with left colon lesions, will be admitted with acute obstruction, having previously been relatively asymptomatic. The cause of this acute obstruction in a lesion which must have gradually narrowed the lumen over a period of months has been of interest. Local edema and inflammation, fecal impaction, intussusception, mucosal prolapse and perforation may be factors at times. Gius[6], however, has clearly demonstrated hypertrophy of the musculature of the proximal colon which has compensated for the decreased lumen by increased work. Finally obstruction has reached such a degree that, in effect, decompensation takes place.

SIGNS

About 65 per cent of the patients with lesions of the right colon will have a palpable abdominal mass, whereas only 25 per cent of the left colon lesions are felt. The signs of obstruction and of peritonitis will obviously depend on the extent of these complications. All of the rectal lesions should be palpable or visible and one-fourth of the sigmoid tumors felt or seen. Therefore, about 75 per cent of all colon and rectal lesions should be diagnosed or suspected by means of abdominal palpation, rectal examination and sigmoidoscopy.

RADIOLOGIC AND LABORATORY FINDINGS

The usual laboratory procedures should be carried out as these are important in the care of the patient. The barium enema x-ray examinations in our hospital have been remarkably accurate. Most of the patients with lesions of the colon had barium enema examination, although it was unnecessary in some of the acutely obstructed patients. With unobstructed rectal carcinoma, barium enema was usually given in order to visualize polyps or a second carcinoma in the colon. Particular care is necessary to avoid impaction of the barium above a partially obstructing tumor.

PREOPERATIVE CARE

The necessity of proper evaluation and treatment of concomitant disease, anemia, nutritional deficiency, and fluid and electrolyte alterations is obvious. The most important single factor in the preoperative care of these patients is the degree of obstruction. For the majority of patients, proper diet, laxatives, enemas and an antibiotic are sufficient preparation. Anlyan, Hart, Georgiade and Poston[7] at this hospital studied the effect of antibiotics in lowering fecal bacterial count and believe neomycin preferable. Moderate obstruction may respond to suction through one of the long tubes. Complete or nearly complete obstruction is a dangerous situation and will require operative relief in at least 90 per cent of the cases. Cecostomy or transverse colostomy may be performed. Cecostomy is a life-saving procedure which will provide decompression, and is more easily done with greater safety for the patient. Transverse colostomy will decompress and also defunctionalize the distal loop to a certain degree; allowing more adequate cleansing of the bowel above the lesion. About 7 per cent of our series required preliminary operative decompression, and cecostomy and colostomy were employed with nearly equal frequency.

OPERATIONS

Operability and resectability are terms which need clarification. We have used operability to mean the percentage of all patients seen, whether or not admitted, previously treated, etc., who have had any major type of surgical treatment directed toward their lesion other than the preliminary decompression procedures. Resectability means the percentage of operable patients who had removal of the lesion with reasonable hope of cure. At the present time, in our patients, operability is about 80 per cent and resectability 60 per cent.

Resections for lesions of the right colon have been essentially unchanged for a number of years. For the left side of the colon, exteriorization procedures have now been almost completely abandoned and resection and primary open anastomosis is done. It should be emphasized that the principle of an accurate anastomosis on a decompressed bowel with a good blood supply has not changed. The extent of the resection in left colon lesions has increased in recent years as have attempts to extend resection in the more extensive lesions. Further study of long-term survival will be necessary to determine if the more radical procedures are justifiable, as extensive resection will probably increase postoperative mortality.

For lesions of the low sigmoid and rectum, the combined abdominoperineal resection of Miles has been used for years. The sphincter saving pull-through procedure has been employed in our series in only a few patients. Anterior resection for low sigmoid and high rectal lesions has been performed with increasing frequency. This change is indicated, on the basis of the many excellent reported studies[8,9,10] of intramural, extramural and lymphatic spread of rectal carcinoma and particularly since comparable five-year survivals in the few recorded series[11,12] show equal or better results with anterior resection.

The warnings of Cole[13] and of Fisher and Turnbull[14] concerning intraluminal implantation at the suture line and venous cancer emboli should be noted. The recommended early vein ligation and proximal and distal occlusion of the bowel lumen are measures which should be of value.

POSTOPERATIVE MORTALITY

During the past 25 years, a gradual reduction in postoperative mortality has taken place in our series and in other reported groups. For definitive resections, mortality was 32 per cent in the five-year period 1931-1935, whereas in the past five years this has been about 3 per cent. Peritonitis remains an important cause of death; peritonitis caused 35 per cent of the postoperative deaths in the 1931-1945 group and 29 per cent in the 1946-1955 series.

RESULTS

The five-year survival is modified by a number of factors such as lymph node metastasis, local invasion, venous metastasis, grade of the tumor, etc. All of these have received detailed attention in the literature. Our results are noted below without consideration of these important variables, nothing only gross survival statistics which are about the average of those reported by others.

Palliative resection has been performed with increasing frequency in those patients who have liver metastasis, periaortic node metastasis, and similar incurable extension. In our recent series, 59 patients who had only colostomy or a by-pass procedure lived an average of 6.9 months, the longest being 24 months. Palliative resection in 65 patients gave an average survival of 13.6 months; and the longest was 47 months. The improvement in nutrition and in comfort are equally important to the added months of life.

Our five-year survival statistics are as follows: 1) based on all patients seen 1931-1950: right colon 27.1 per cent, left colon 25.6 per cent, and rectum 14.5 per cent; 2) based on resected cases only, 1931-1950, excluding postoperative deaths and counting all patients lost to follow-up as dead: right colon 53.7 per cent, left colon 50.0 per cent, and rectum 49.7 per cent.

SUMMARY

Carcinoma of the colon and rectum is frequently seen and usually easily diagnosed if proper examinations are done. Adenomatous polyps, familial polyposis, and chronic ulcerative colitis are predisposing diseases which should be surgically treated. Obstruction is the most frequent and important complication. Operation requires a properly prepared patient in order to perform an accurate anastomosis in a decompressed bowel with a good blood supply. Five-year survival rates are not high and could be improved by earlier diagnosis and treatment.

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Herpes Simplex of the Cornea*

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Herpes simplex infections are one of the most widespread virus diseases. Herpes simplex infection of the eye is steadily increasing in frequency and in severity.

HISTORY

Herpes simplex of the cornea was first described as a clinical entity by Horner in 1871. Vidal, in 1873, was probably the first to show that herpes simplex lesions on the lips were infectious. To Gruter (1912) belongs the credit for the establishment of the specific virus as etiologic agent in the vesicular fluid and its cultivation to other animals. He showed its relationship to the herpetic lesion on the face, lips and genitals. The intranuclear inclusions were described by Lipschutz, Gruter, and others between 1912 and 1920[1].

MORPHOLOGY

Histologic examination of lesions in virus diseases frequently reveals peculiar bodies called "inclusion bodies." Their exact nature is not known, but they are peculiarly associated with virus infections. Some have felt that they represent an actual virus (Lindner, Howard, Thygeson), or a specific change resulting from the activity of the virus (Lumbroso). Others suggest that they represent disintegrated bacteria in the process of being phagocytosed (Herzog, McKee, Williams), or even non specific reaction products[1].

The inclusion bodies of herpes simplex are small eosinophilic granules variously estimated to be .1 to .22 microns in diameter. They are found free in vesicular fluid and within epithelium cells[2].

The Lipshutz body is a typical inclusion body of herpes simplex. It is a granular eosinophilic intranuclear body measuring from .2 microns up to the diameter of the nucleus itself. It is visible only upon section of the nucleus[2].

The virus grows readily upon the chick embryo, producing well defined pocks which are white, opaque, circular or ring-like lesions of small size, within forty-eight hours. The embryo usually dies within three to five days with or without the chronic lesion of the liver, heart, lungs, kidney and spleen[2]. When the virus is transferred to the cornea of the rabbit, it produces a similar lesion and the infection travels up the nerves and produces an affection of the CNS (central nervous system). In the case of herpes cornea the virus travels up the first division of the fifth nerve and the primary lesion is in the bulbo-spinal root. It is not known for sure whether it progresses up the perineural lymph spaces or by the axis cylinders of the nerve fibrils themselves[1].

The herpes virus stimulates an antibody response in the body. Burnet showed that individuals susceptible to herpes have circulating serum antibodies to the virus. He reported "all or nothing" response. Either the antibody titer is very high, or there is none[3].

The adults who are susceptible have repeated attacks while those who are not almost never develop the infection. Similarly, persons who are not susceptible have no serum antibody. Callardo observed that antibodies were not present until sixteen or eighteen days after onset of the disease. In recurrent dendritic lesions the antibodies were present from the onset. There is little evidence to support any relations between the virus of herpes simplex and that of herpes zoster[4].

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*Presented before the Section on Eye, Ear, Nose and Throat at the eighty-eighth annual session of the Mississippi State Medical Association, Jackson, Miss., May 8-10, 1956.

Herpes simplex infections may be established in early childhood as an aphthous stomatitis, or conjunctivitis. The virus then remains for life, usually in a latent form. Active herpetic lesions develop in these people when some stimulus causes the virus to be reliberated into susceptible tissue. The stimuli may be some trivial conjunctival or corneal injury, a low grade conjunctivitis or some systemic infection. An associated systemic infection precedes about 60 per cent of the cases of herpes. Different fevers, especially malaria, are followed by herpes labialis and a keratitis. Herpes simplex infection may also be brought out by emotional disturbances, especially anxiety states. We are all familiar with the observation of herpes in young people preceding an important speech or test of some kind. There are many case reports of dendritic ulcers following arc-flash burns. And we are familiar with the herpes labialis following sun burns to the face[3].

The mechanism of release of the herpes virus from the nucleus to produce its infection is not well understood. But on its release it may be completely neutralized by the fixed tissue antibody. The fixed tissue antibody has been demonstrated by many. The balance between this local immune substance and the virus is critical, and the immune substance may be destroyed by some enzyme action. Cortisone is one substance that will disturb the local immunity. With a fever like malaria, cortisone may be liberated from the adrenals in fairly large quantities. It is possible that this release of cortisone may cause herpes keratitis because it interferes with the fixed tissue immunity or with the nuclear membrane surrounding the inclusion bodies. Since fixed tissue immunity is so closely tied with hypersensitivity, and cortisone affects the collagen response in hypersensitivity, then cortisone most likely prevents the aggresin from uniting with the virus[3].

HISTOLOGY

Histologically, the lesions show characteristic changes involving the entire thickness of the corneal epithelium. Primarily, the nuclei become hypertrophic and the nuclear membrane is wrinkled and thickened. The chromatin becomes agglutinated and aggregated near the membrane and acidophilic Lipschutz corpuscles enlarge, assume a polymorphic character and appear in the nucleus. The nucleus undergoes degeneration, and diffuse necrosis develops with swelling and vacuolation of the cells. Finally, the cornea may become completely denuded of epithelium in areas, or there may remain a thin layer of flat cells surrounded by thickened proliferated epithelium, which shows nuclear degeneration. The necrosis may involve Bowman's membrane and spread to the superficial layers of the stroma which may show leukocytic infiltration[1].

The relation of the herpetic infection to the corneal nerves is not fully understood. The loss of corneal sensitivity, though, is assumed either due to direct involvement of the nerve or mechanically due to the dense accumulation of cells around the nerve fibers[1].

Herpes simplex occurs at all ages and very frequently in children. It is usually unilateral, but bilateral cases have been recorded. Both sexes are attacked about equally in childhood, but in adult life males predominate. Once an eye has been affected there is a definite tendency to recurrences.

CLINICAL TYPES OF INFECTION

Braley recognizes four clinical types of the herpes infection and this classification will be discussed here. The four types are:

1. An acute primary herpes simplex, blepharokeratoconjunctivitis.
2. Self-limited recurrent dendritic ulcers of the cornea without conjunctivitis.
3. A dendritic ulcer of the cornea, which progresses to the development of a disciform keratitis and uveitis.
4. A chronic keratitis with some dendritic ulcer character, with active and healed areas, which may be called keratitis metaherpetica[3].

1. ACUTE PRIMARY KERATOCONJUNCTIVITIS—This type of infection usually begins suddenly with edema of the lids and bulbar conjunctiva. Blisters usually develop on the lid border along with a follicular hypertrophy of the conjunctiva. There is usually a pre-auricular and anterior chain lymphadenopathy. There may be an associated rhinitis and stomatitis. The cornea usually shows a distinct dendritic figure, but the epithelum may be completely denuded. Occasionally there are multiple dendritic figures. The infection usually runs a course of fourteen to eighteen days and heals with slight scarring of the cornea. This type of infection usually occurs in the teen-age but has been seen in children and adults. In teenagers the disease is usually self-limited, but in older individuals the disease is likely to become a chronic keratitis[3].

2. RECURRENT DENDRITIC ULCERS OF THE CORNEA WITHOUT CONJUNCTIVITIS—This disease is the most common form of the infection. It develops with a foreign body sensation. The bulbar conjunctiva is mildly injected

and there may be photophobia and lacrimation. The pain may be surprisingly little compared to the degree of ulceration.

The ulcer may occur anywhere on the cornea, but frequently is in the pupillary area. The lesion has a characteristic appearance as it is formed by a confluence of minute herpetic lesions in an irregular zigzag line, and many side branchings, the ends of which have beadlike nodes. The line of ulcerations rarely exceeds 1 mm. in breadth. When the lesion is stained with fluorescein, the fine line in the epithelium takes a brilliant green stain. The lesion runs a course of five to fourteen days, and heals leaving a slight scar in Bowman's membrane. The virus then returns to its latent state in the cells, awaiting the proper stimulus to produce another lesion[3].

3. DISCIFORM KERATITIS ASSOCIATED WITH HERPES—Edema of the corneal stroma and wrinkling of Descemet's membrane occasionally develops during an attack of herpes cornea. This usually develops on the seventh to tenth day of the disease. The epithelium may show signs of healing, but the edema of the cornea increases and a round opacity develops in the corneal stroma. The opacity is ordinarily grayish white, may be round or irregular in shape. The mechanism for the development of disciform keratitis is not too well understood, but it is a type of collagen reaction as seen produced in the cornea by acne rosacea. The disciform of herpes is usually characteristic. After the disciform develops and the edema subsides there are found many deposits on the posterior surface of the cornea and there is a mild to severe iridocyclitis. Braley feels that it represents a hypersensitivity to herpes. The reaction is manifest first by the edema, then the disciform, and later vascularization.

A disciform keratitis may develop in any of the types of herpes. It may develop in someone who has had repeated attacks of herpes cornea previously without severe corneal damage[3].

4. KERATITIS META HERPETICA—Under certain circumstances a herpes lesion tends to become chronic. The metaherpetic stage is a chronic inflammation of the corneal epithelium. Disciform keratitis may or may not be associated. The dendritic figure is not seen in this phase, but instead are small round or oval ulcers with sinuous or scalloped borders. Small bullae may be in the epithelium so that it resembles a bullous keratitis. The eye is irritable and there is a low grade iridocyclitis. There may be pain, photophobia, and lacrimation. The corneal sensitivity is deficient over the affected area and may involve the whole cornea. The chronic phase may go on for months before healing occurs. Braley feels that this type of lesion is due to the failure of the epithelial cells to produce the basal layer of cells. The large polygonal cells become hyperplastic to fill the defect in the epithelium and there seems to be fluid under the epithelium. He feels that the metaherpetic stage is a chronic inflammation where the amount of virus present and the local immunity are in a delicate balance.

Isolation of the herpetic virus is extremely difficult in these cases but has been accomplished in a few cases[3].

TREATMENT

There is no known specific therapy for the herpes virus. Thygsen has summarized our experience in the treatment of herpes cornea by stating that there has accumulated a great knowledge on the epidemiology, the immunology, the biology and the morphological properties of the herpes simplex virus, but little or no progress has been made in the field of therapy[5].

In search of the ideal treatment for herpes simplex, the following have been tried, and in most instances have proved ineffective.

Quinine was used by early investigators, due to the frequent association of herpes cornea with malaria[6].

Lloyd advocated infra-red heat to the eye, while Hamilton asserted that heat is directly contraindicated in the treatment of herpes cornea and that ice compresses are to be used[6].

Ultra violet radiation has been used, with variable results. Gunderson reported that the virus of herpes cornea could not be destroyed by any exposure to ultraviolet light that would be practical to use on the human eye[6].

Darier recommended roentgen irradiation, while Kumer and Van Sallman found no beneficial effect[6].

The elimination of a focus of infection was advocated by some but other workers could not substantiate that an infection was the causal agent.

Vitamins A and B have been advocated for corneal ulcer healing.

Methenamine has been found to be helpful, but again not a specific therapy for the condition[6].

The sulfonamide drugs offered hope for awhile, but are probably of no real value in herpetic infections.

Immunization against herpes simplex has been tried. Davis reported good results in recurrent herpes with repeated vaccinations every ten to fourteen days with the vacinia virus[6]. Braley feels that this form of treatment may be of particular value in keratitis metaherpetica. But in general, immunization treatment has been unsuccessful[3].

The antibiotics have not lived up to their expected miraculous cure of herpes cornea. The enthusiasm for aureomycin failed to withstand the test of time[7].

Thygeson feels that the use of antipyretics and antihistamines is worthy of a trial when fever is a precipitating cause, or when the activating mechanism is due to sunburn, menstruation, emotional crisis, or allergy[5].

Special mention and more emphasis should be placed as to the use of cortisone in herpes cornea. The evidence that has now accumulated shows that cortisone has a masking effect only in this disease. In spite of the fact the patient may feel better or even an occasional good result reported, it is felt that only harm can be expected from its widespread indiscriminate use[5]. An explanation for this bad effect was mentioned in discussing the morphology of herpes virus. Gunderson stated that prior to cortisone corneal perforations were rare as a complication of herpes cornea. Braley feels that the careful use of cortisone and hydrocortisone where there is edema of the cornea which seems to be the precursor of disciform keratitis may be valuable, but he emphasizes to use them cautiously[3].

The most promising hope still in the treatment of herpetic infection of the cornea is the application of drugs directly to the cornea which destroys the infected epithelium. Again, many agents have been used.

Hamilton used 2 per cent silver nitrate to the corneal lesions as well as the conjunctival sac and lids[4].

Gifford recommended trichloracetic acid 50 per cent and mechromin paste[4].

Eperon used 20 per cent zinc sulfate[4].

More recently, Kronenberg advocated cauterization of the corneal epithelium with ether. Others have failed to get the same result. But Kronenberg feels the technic must be followed meticulously to achieve the good result. The eye is anesthetized and stained with fluorescein. A small cotton applicator is dipped in fresh ether shaking off the excess, and the applicator applied to the corneal lesion, removing the affected epithelium, and a small amount of its surrounding epithelium. The application alone is not enough, but it must be rubbed in. Metaphen ointment is instilled and the eye bandaged. This is repeated in 24 hours, and again in another 24 hours if necessary[9].

But perhaps the most widely used and still the most satisfactory form of treatment is the local application of tincture of iodine as recommended by Gundersen[10]. The cornea is anesthetized with a 4 per cent solution of cocaine and the ulcer is stained with fluorescein. The stained area including the adjacent epithelium, is then cauterized with a cotton applicator saturated with tincture of iodine. The entire treated area must be denuded of epithelium. The effectiveness of the treatment is dependent on the destruction and removal of a sufficient amount of virus containing tissue, and perhaps also on the attenuation of the remaining virus.

Sodium iodide, orally, 1 grain per 10 pounds of body weight, is recommended by some.

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DISCUSSION

Dr. Wm. T. Wilkins (Clarksdale, Miss.) — To me, this is one of the most trying and difficult conditions we have to deal with.

We have used, I think, all of the treatments given by Dr. Holmes and at times have obtained results with each of them. In several cases we have used a solution of bismuth violet in 10 per cent glycerin[1]. In some so treated we had rapid recovery; in others, after several days of no apparent improvement the bismuth violet solution was abandoned and other methods of treatment instituted.

We were sure we had the specific treatment when we first used Kronenberg's ether cautery as outlined by Dr. Holmes. Our first three cases treated in this manner healed with no sign of scarring in from 24 to 72 hours. The results in the next several cases were much less dramatic and in some, treatment with ether was stopped and tincture of iodine used.

Benton[2] in reporting a series of cases in the *Journal of the Florida Medical Association,* treated by a modification of Kronenberg's original method, says that during the past eight years he has treated all dendritic ulcers that have come under his care by this method. In the twelve most recent cases reviewed all had healed in one to three days following one ether cautery treatment.

We have in the past used cortisone or hydrocortisone in suspension or in the ointment form combined with mycins and/or sulfonamides; and in some instances thought that this definitely promoted healing and shortened the course of the disease. We now find, however, that according to Vail[3] "Topical steroid treatment of acute dendritic keratitis is now known to make the matter much worse and delay healing. Why it doesn't do so in herpes zoster is a mystery that requires further investigation. In the presence of an active ulcer of the cornea, regardless of cause, it seems in the present state of our experience much wiser to hold off the local treatment with steroids until the cornea is healed over."

Ralph I. Lloyd[4] in his paper "Dendritic Keratitis and Sequelae" says that we concentrate all our efforts on healing the ulcer stage and pay too little attention to the after effects of the disease. He advocates the use of 95 per cent carbolic acid to cauterize the ulcers and remove the surrounding epithelium. The eye is kept closed and covered until all redness and lacrimation has cleared and the eye is white and comfortable. He then allows the eye to be opened and used if it is protected from dirt and drying effects of the air until the cornea regains an approximately normal sensitivity. He accomplishes this by using a moist chamber spectacle or an expansion shield that can be attached to any glasses frame. By following this method he prevents many relapses and recurrences of the ulcers and other complications he had previously seen occurring due to the lowered sensitivity of the cornea.

Since reading Dr. Holmes' paper I have decided that on my next case I am going to give 1,000 micrograms of vitamin B_{12} intramuscularly daily along with my other treatment. We have obtained excellent results with B_{12} in treating neuralgias. As yet I have not used it in herpes. I found only one report of its use in herpetic lesions in the literature I had available. Leitch[5] reported using massive doses (1,000 micrograms) vitamin B_{12} in five cases of herpes zoster and one of herpes simplex labialis. He reported excellent results in all cases.

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*BUILDER OR WRECKER

I watched them tearing a building down,
A gang of men in a busy town,
With a ho-heave-ho and lusty yell,
They swung a beam and a side wall fell.
I asked the foreman, "Are these men skilled,
And the men you'd hire if you'd had to build?
He gave a laugh and said "No, indeed!
Just common labor is all I need.
I can easily wreck in a day or two
What builders have taken a year to do."
I thought to myself as I went my way,
Which of these roles have I tried to play?
Am I a builder who works with care,
Measuring life by the rule and square?
Am I shaping my deeds to a well-made plan,
Patiently doing the best I can?
Or am I a wrecker who walks the town,
Content with the labor of tearing down?

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. .... Cardiology
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University Medical Center .... Surgery

CARDIOLOGY

The Significance of Non-Bacterial Thrombotic Endocarditis: An autopsy and clinical study of 78 cases — Richard A. McDonald, M.D. and Stanley L. Robbins, M.D., Boston City Hospital, Boston, Massachusetts.

This paper calls attention to the little known fact that there is a type of non-bacterial endocarditis, characterized by embolism and thus possessing a clinical as well as pathologic significance. From a review at the Mallory Institute of Pathology, there is evidence that in a large number of such cases emboli may arise from the valvular vegetations and cause premortem infarction of organs, occasionally contributing to death and, in rare instances, being the sole cause of death. This disease has been termed in the past, terminal endocarditis, marantic endocarditis, and endocarditis simplex.

Libman first differentiated this non-bacterial from the bacterial, rheumatic and syphilitic types; and at this time, outlined a view that has subsequently been repeated, namely, that the lesions have no clinical significance and occur as a terminal event in patients with a wasting disease. However, Libman later stated that the vegetations may occasionally give rise to emboli. Other authors have stated that this type of endocarditis was dependent upon previous valvular damage, usually rheumatic in origin, consisting primarily of swollen, degenerated collagen of the valve, and that lesions were not necessarily terminal but occurred during the course of both acute and chronic diseases, and, although healing at times, they present important morphologic basis for the development of bacterial endocarditis.

Seventy-eight cases were reviewed from the Mallory Institute of Pathology, and the age incidence was found to be varying between 18 and 90 years of age. Forty of the patients were females and thirty-eight were males, and sixty-nine of the seventy-eight patients were over the age of 49. The principal illnesses in these seventy-eight cases were cancer in twenty-seven cases; heart failure in thirteen cases; cerebrovascular accidents in eleven cases; and the rest of the illnesses being varied, including pneumonia, pulmonary embolism, hepatic coma, acute pyelonephritis, and acute myocardial infarction. The valves of the left side of the heart were almost exclusively involved, with the mitral involved alone in forty-three cases, the aortic valve alone in fifteen cases, and combined valves in fourteen cases. In only five cases were the tricuspid and pulmonic valves involved. An autopsy, of the seventy-eight cases there were eleven patients in whom multiple embolic infarctions of organs were found with the source of the emboli considered to have been the valvular vegetations, and these emboli were divided among the brain, spleen, kidneys, coronary arteries, bowel, skin and extremities.

From the study of these eleven cases, the evidence may be summarized as follows:

1) In these cases no source of the emboli other than the valvular vegetations was found.

2) The nature and multiplicity of the vascular lesions in the infarcted organs confirmed their embolic origin.

3) The infarctions were of such age, histologically, as to indicate that they had been present for a short time before death and they did not appear as a terminal phenomenon.

4) Seven of the eleven patients had regular cardiac rhythm at all times, so that an irregular cardiac rhythm, giving rise to emboli, could not be invoked as a possible source in these cases.

5) The auricles, in three of the four cases with auricular fibrillation, were examined microscopically, and there was no gross or microscopic evidence of reaction in the endocardium, such as might have been consistent with pre-existing thrombus. Therefore, the vegetations on the valves were considered to be the source of multiple emboli, contributing to and, in rare cases, actually being the main cause of death.

The most commonly associated diseases were: cancer, 36 per cent; heart failure, 30 per cent; and vascular thromboses, 27 per cent. The chief therapeutic value of clinical recognition of the condition at the present time is in differentiating this embolic cerebrovascular disease from hemorrhage and thrombosis, and in directing one's attention to associated and perhaps causative conditions.

COMMENT: Many of us have recognized the verrucous valvular lesions at autopsy, considered to be terminal in origin and probably related to abnormalities in coagulation. The fact that these lesions can be premortem and can contribute to, and in some cases, be the sole cause of death, now directs our attention to the principles of recognition of this disease and development of appropriate therapy. In almost all cases, the other diseases involved in differential diagnosis can be excluded, and these include: acute bacterial endocarditis, sub-acute bacterial endocarditis, active rheumatic endocarditis, and the endocarditis of lupus erythematosis disseminata.

SURGERY

THE PENDULUM OF SURGERY

J. V. Cockrell, M.D.

Newly devised or newly popularized operations are like a pendulum in motion. They swing into vogue in short order. Then the reaction occurs, as more surgeons try the new procedure and gain experience with it. The pendulum of reaction then swings in the opposite direction, but finally settles down in a more natural position as the operation is accorded its permanent niche in the surgical armamentarium.

Many of the swings take but a few months. A few take many years.

A mark of maturity in a surgeon is that he understands this situation and can separate the wheat from the chaff.

Also, it is most important that surgical residents be taught discrimination in this area, as at times their eagerness is unbound.

In the past few years, some prime examples of the above are as follows:

The replacement of various dorsal and dorsolumbar sympathectomies by more effective drug therapies in the treatment of hypertension.

The short lived popularity of the hepatic artery ligation for cirrhosis with esophageal varices.

The discontinuance of the use of lumbar sympathectomy for vascular insufficiency in the lower extremities due to arteriosclerosis.

The gradual discard of radical pancreaticoduodenal (Whipple) operations for carcinoma of the pancreas. This procedure still has a place in carcinoma of the Ampulla of Vater.

The return to popularity of "stripping" for varicose veins, replacing the many ligating and injection techniques.

The many hundreds of variations in technique written into the literature for the repair of inguinal hernia, few of which have achieved a lasting place.

The replacement of thoracoplasty by lung resection in most cases of thoracic surgery.

The list could go on and on, but the above illustrates the point.

PEDIATRICS

Celiac Disease—H. J. Ebbs, Canad. M. A. J. 75:885-893 (Dec. 1) 1956 (Toronto).

Ebbs reviews the present status of knowledge on celiac disease, which is a chronic disturbance of nutrition resulting in poor absorption of facts and other nutrients. The feces vary from constipation to diarrhea. The large abdomen gives the child the well-known clinical appearance. Roentgenography of the intestine shows segmentation of the barium column, probably caused by an excessive secretion of mucus. Growth may be retarded, and hippocratic fingers may be seen in children with the severe form of celiac disease, but this sign disappears when the disease is cured. The dentition is often delayed, but the teeth usually remain quite good and free from caries. The onset is sudden in about half the cases, coinciding with an infection such as dysentery or nasopharyngitis; in the other 50 per cent it is insidious. Occasionally, food allergy has been reported to be associated with the onset. The sugar tolerance curve is low if the sugar is administered by mouth, normal if given intravenously. The feces contain an average of 10 gm. of fat daily, whereas the stool of a normal child contains 4 or 5 gm. A study of the families of children with celiac disease showed that there is a family tendency. The discovery that the gluten of cereal, particularly wheat, is deleterious in some cases has provided one of the greatest advances in the management of this condition. The possible role of food allergy has been tested. While clinical trial would appear to support this as an etiological factor, skin tests with protein do not appear to be of value. Clinical experience with gluten-free diets, control of infection, the use of special starch recipes, and in severe and resistant cases the judicious use of cortisone, indicate that significant advances have been made in the management of celiac disease.

COMMENT

This is an extraordinarily good article by the author and subject indicated above. I trust that every physician in Mississippi will read it carefully.

MISSISSIPPI ACADEMY OF GENERAL PRACTICE

SYMPOSIUM ON DIARRHEA

The program for the symposium is complete. Six outstanding speakers will present various facets of the causes and cures of diarrhea. This one-day meeting, to be held on June 13, 1957, at the Heidelberg Hotel in Jackson, is co-sponsored by the Mississippi Academy of General Practice and the University of Mississippi School of Medicine.

Subjects and speakers will be:

"Diagnosis and Management of Amebiasis" — Dr. Harold W. Brown, Columbia University

"Diagnosis and Management of Salmonella and Shigella Infections" — Dr. William W. Frye, Louisiana State University

"Fluid and Electrolyte Therapy in Diarrhea" — Dr. Nelson K. Ordway, University of North Carolina

"Ion Exchange Resins in Treatment of Diarrhea" — Dr. Jerome Wiess, New York Polyclinic Hospital

"Antibiotics in Treatment of Diarrhea" — Dr. John Seabury, Louisiana State University

"Psychosomatic Aspect of Diarrhea" — Dr. Robert A. Davison, University of Tennessee.

This postgraduate course is recognized for five (5) hours of Category I (formal) credit. No registration fee will be charged.

A. A. G. P. ASSEMBLY SUCCESS

The St. Louis meeting was a huge success, as expected. New Academy officers were chosen:
President — Dr. Malcolm E. Phelps, Oklahoma
President-Elect — Dr. Holland T. Jackson, Texas
Vice-President — Dr. Fred H. Simonton, Georgia
Directors — Dr. Mary E. Johnston, Virginia; Dr. Norman Booler, Indiana; Dr. M. C. Wiginton, Louisiana.

It looks like the South has risen again!

Mississippians attending the Assembly included Drs. William E. Lotterhos, John B. Howell, Delegates; Drs. A. T. Tatum, John C. Longest, A. V. Beacham, Maury McRae, Louis F. Rittelmeyer, Jim Barnett and S. S. Kety.

NEW MEMBERS

Dr. Thomas Ross of Jackson; Dr. J. H. Leigh of Philadelphia; Dr. Joseph H. Shoemaker of Okolona; and Dr. R. L. Moore, Jr., of Philadelphia have recently been accepted for active membership in the Academy, and Dr. Max Pharr of Jackson for associate membership. Congratulations, gentlemen, and welcome!

M. A. G. P. LUNCHEON

The Academy will hold a luncheon meeting in Biloxi during the M. S. M. A. convention. All members present at the convention are urged to attend and bring a friend.

The tentative time and place — the Buena Vista Hotel at noon on Wednesday, May 15. Check the official program for confirmation, because it is possible that changes might have to be made.

GETTING ACQUAINTED

Members in Districts I to VIII inclusive have been listed previously.

Districts IX and X

Dr. John C. Powell, Senatobia—director, District IX
Dr. Frank K. Tatum, Tupelo—director, District X
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Dr. Thomas L. Sweat, Corinth, Miss.
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Dr. John Edgar Tate, Ripley, Miss.
Dr. R. B. Warriner, Corinth, Miss.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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§

OUR STAKE IN MEDICAL EDUCATION

Medical Education Week, which is to be observed April 21-27, has six specific goals — and all of them are vitally important to the country:

1. To portray the key role that medical education plays in the maintenance of the nation's health and security. 2. To explain how our 82 medical schools are striving to meet the demand for a larger number of physicians and at the same time maintain high standards. 3. To call attention to the steady progress in the medical sciences, showing what this means in terms of longer life, better health, and greater freedom from disease and disability. 4. To point out the wide range of activities, such as teaching, research, service and leaderhsip, the schools carry on in addition to the job of training new doctors. 5. To make clear the extent and nature of the new challenges to the medical profession, resulting both from our constantly expanding fund of knowledge and from the mounting complexity of our civilization. 6. To point out some of the steps being constantly taken to push back the horizons of medical science in every field.

President Eisenhower, in endorsing the observance of Medical Education Week, said: "Each American has a personal stake in the country's medical schools. The schools . . . are a vital resource for the health of our people and the strength of the nation."

CANCER

April is Cancer Month. The death rate from this mysterious disease is second to heart. But we are beginning to talk of the number we save. The American Cancer Society states that a life is saved every four minutes, or 150,000 each year. Cancer is cruel, treacherous and expensive. Research holds the key to the problem. It is said that we will have fifty million dollars for cancer research this year. Research will find the answer if we continue to furnish the money that is needed and keep alive the interest we now have in whipping cancer.

The practitioner can serve heroically also in helping research, in finding cancer in its early stages, in using the means at hand which will save nearly half the deaths from cancer we now have. The doctor and the nurse can do wonders in educating the public to watch for cancer and to have it treated early.

NEW SCIENCE

Now the American Medical Association has a special committee to study the medical aspects of automobile injuries and deaths. A general practitioner suggested that this might be the beginning of a new specialty, "medicotrafficology." Day by day we see that accidental injuries and deaths are becoming one of our biggest problems in human society and economics.

Cornell University has been making experiments and releasing interesting information on injuries received in the automobile. Eight thousand auto accidents in 12 states were studied. It was observed that many less injuries were received when the occupant remained inside the car and hence the benefit of the safety belt. The safety door lock is counted valuable also. In more than 800 accidents, the average speed was found to be 41 miles. This is much lower than expected. When the speed passes sixty miles per hour then accidental auto injuries pick up fast.

Many factors enter into the causes of highway injuries. A good car in good condition and a healthy, sober driver are very important, but the mental attitude of the driver is an important matter. The driver on the highway reveals his character, his altertness, and his regard for others.

The automobile manufacturers are now giving attention to making safer cars: power brakes, padded instrument panel, better focus of lights, surer visibility.

SURGICAL PROGRESS IN MISSISSIPPI

J. V. Cockrell, M.D.

The level of surgery in an area or community can be measured by the number of well trained surgeons and hospital facilities available.

It likewise can be measured by the availability of pathologists, and anesthesiologists, both essential team members for the performance of high quality surgery.

In this regard, it is interesting to note that Dr. Hans N. Naumann reports a rapid growth in the number of pathologists in Mississippi. Thirty years ago, one pathologist served the entire state. In 1948, there were 6 pathologists, 2 in Jackson, 2 in Vicksburg, 1 in Greenville and 1 at Oxford. Today, the State Society of Pathologists has 18 members, 9 of whom are in Jackson.

Anesthesiology is developing at a similar pace. The first well trained anesthesiologist came to Jackson in 1948. Now there are 8 physicians in Jackson, limiting their practice to anesthesiology.

DR. SEALE HARRIS

The death of Dr. Seale Harris of Birmingham, Ala., brought sadness to hundreds of doctors and thousands of people in the South and across the nation. His innate culture and refinement set him apart. He was a delightful friend, kind and sincere, courtly and generous. His cordial personality never failed to inspire to nobler efforts. Dr. Harris loved medicine, he loved people, he was ever interested in the affairs of the nation. He was engaging as a conversationalist, clear and concise as a writer and an author. He possessed medical integrity and he was a Christian citizen ever ready to aid in every good cause.

An expert on diabetes, he discovered hyperinsulinism, which is the opposite of this disease. In the field of internal medicine he was known around the world. Dr. Harris loved Mississippi and Mississippi people. He was an honorary member of the Fifty Year Club of the Mississippi State Medical Association.

Dr. Harris wrote many books and contributed liberally to medical journals. He was able in the practice of medicine. The Seale Harris Clinic has been a beacon light in the progressive march of internal medicine.

When all the fine and useful qualities of Dr. Seale Harris are summed up, the medical profession of our land has not produced a member to surpass Dr. Seale Harris.

In his passing we think of two of his barbasheelas, both beloved in our state, Dr. W. A. Evans of Aberdeen and Dr. Rudolph Matas of New Orleans. A great trio this, in deed known and loved around the world! Dr. Evans passed several years ago at 84. The dean of the surgical world yet lingers in a hospital in New Orleans in his middle nineties.

DOGS AND RESEARCH

Every thing has its place in the onward march of civilization. The dog, even the old cur, has played his part in a big way in the field of medical research. Dr. Anton Julius Carlson, at the University of Chicago, succeeded in getting the Mayor of Chicago to pardon many dogs that were held in the pound awaiting their doom. Goiter was endemic about Chicago. Largely through the use of the dogs it was found that the lack of iodine was causing the disease.

The Kipling Magazine now reports that Fido can get insurance just like his master. Benefits are limited to $75.00 for each accident or illness requiring hospitalization. The plan, called Canine Shield, was started in Kansas City and now is available in 38 states.

ACCREDITED

For a half century Mississippi maintained one of the very best two-year medical schools in the nation. Now we are graduating our first class from an accredited four-year school. The doctors are the index to the type of medical service the people are to receive. We look to our medical schools for constant recruits to the ranks of the profession; and our schools are largely responsible for the type of doctors we have. The practice of medicine also should be kept in the hands of the doctors. We are proud of our four-year medical school and should support it unreservedly.

MAY IS MENTAL HEALTH MONTH

Interest in mental health is an awakening long past due. Senator Hayden Campbell is chairman for the state campaign in May. He is a great organizer, did fine work in helping to secure our four-year medical school, and rendered fine service to our mental institution at Whitfield. This institution is outstanding for the nation. With funds and with education we shall go forward to prevent and to cure in this challenging field of medicine.

The plans are for the Fifty Year Club to hold its annual session at a luncheon at the Buena Vista Hotel at the May meeting of the State Medical Association.

The Delta Medical Society put on a fine meeting at Greenwood on April 10. This society always has a fine program.

The Alcorn County doctors put on excellent programs each month, and they keep awake on all affairs in medicine. Maybe some of this progressiveness is due to having our efficient speaker of the House of Delegates of our State Association among their number, Dr. Stanley Hill.

The Northeast Mississippi Society held its first quarterly session at Starkville with Dr. L. D. Webb of Calhoun City presiding as president. He is starting out active in thought and in deed. The society plans to try an evening session for awhile and the meeting in June will be held in Tupelo, beginning at six o'clock.

UNIVERSITY NEWS

Dr. Oscar E. Hubbard, formerly chief of the Mental Health Section of the Alaska Department of Health, has been appointed a professor of psychiatry at the University of Mississippi Medical Center in Jackson.

Dr. Hubbard had headed the mental health program in Alaska since July 1, 1955. Before that date he was an associate professor of psychiatry at Baylor University and chief of psychiatric services at the Veterans Administration Hospital in Houston, Texas. He holds his A. B. from Oberlin (Ohio) College and his M.D. degree from the Johns Hopkins University School of Medicine.

ANNOUNCEMENTS

Dr. S. Gwin Robbins and Dr. William E. Denman, Jr., announce their association in the practice of medical and surgical diseases of the chest. Offices are at 919 M Baptist Hospital, 899 Madison Avenue, Memphis, Tennessee.

CANCER FACTS

FACT—It is estimated that if present rates continue, cancer will strike one in four Americans . . .

FACT—Cancer is the number two killer of men, women and children. It is estimated that if present rates continue, 40,000,000 Americans now living will develop cancer . . .

FACT—More children from 3 to 15 years of age die of cancer than from any other disease . . .

FACT—Radiation and surgery, used together or individually, will cure many cancers if treatment is started in time . . .

FACT—Last year approximately 150,000 men, women and children were saved from dying of cancer by early detection and prompt treatment. *Another 75,000 could have been saved* . . .

NEEDED: More physicians. Good salary. Fine living conditions. Prefer young men but will take men up to 50 years of age. The reason for limiting them to 50 is our retirement system. Unless a man could work 20 years he would not be eligible for retirement. Apply Henry Boswell M.D., Superintendent, Mississippi State Sanatorium, Sanatorium, Miss.

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STATE MEETING

The Woman's Auxiliary to the Mississippi Medical Association will hold its thirty-fourth annual convention at the Buena Vista Hotel, Biloxi, on May 14. Registration will begin at 8:15 a. m., but the registration desk will be open the preceding afternoon on May 13 from three until six o'clock. Those who arrive on the thirteenth are urged to register at that time.

An interesting program is being planned. The General Session will begin at 9:00 a.m., Tuesday, May 14, followed by a luncheon at 1:00 p.m. Special guests of the convention will be Mrs. Robert Flanders, Manchester, New Hampshire, National Auxiliary president, and Mrs. O. W. Robinson, Paris, Texas, Southern Auxiliary president.

On Wednesday, May 15, at 10:30 a.m., the Gulfport Auxiliary will entertain with a coffee at "Beauvoir".

We are grateful to the Coast Counties Auxiliary members for their lovely hospitality. This year's convention officials are:

General Chairman	Mrs. B. B. O'Mara, Biloxi
Registration	Mrs. Eldon Bolton, Biloxi
Transportation	Mrs. E. A. Trudeau, Biloxi
Luncheon	Mrs. James Thompson, Moss Point
Coffee	Mrs. A. C. Hewes, Gulfport

It is hoped that Auxiliary members will not miss this opportunity to have a good time together and to get a better insight into Auxiliary work.

DOCTOR'S DAY OBSERVANCE

During the presidency of Mrs. Carter O'Ferrall of Jackson, the Woman's Auxiliary presented the first hobby show as a commemoration of Doctor's Day in 1956. The committee was headed by Mrs. Willard Waldron. Mrs. Benjamin Folk wrote a series of articles which appeared in the local newspapers to acquaint the public with the type of exhibits that the doctors presented.

The Victory Room of the Heidelberg Hotel on the day of March 27 was the scene of the varied, unusual, and very outstanding hobbies of the doctors of the Central Medical Society. Although this was the first such event in the annual observance of Doctor's Day to be shared with the public, it was very well received in the Jackson area; this hobby show won two outstanding awards at the Southern Medical Association in November, 1956: the first place, Certificate Award, was won in the Auxiliary Division (of 50 or more members); the second award of $10 was won in the Sweepstakes.

The Victory Room 1956 hobby show displayed hobbies of seventy-five physicians.

Exhibits included:

Antique furniture, paintings, Edison cylinder phonograph, hand-tied flies, old watches, hand-made plugs, old books, sail fish, early x-ray equipment, mounted animals, old bronchoscope, golfing (trophies), early medical equipment, decoys, sea shells, deer heads, curio collection, needlepoint, ebony collection, woodworking, ivory collection, model airplanes, waterford glass, barbecue grill, copper molds, orchid plants, cook books, cloissonné, harmonicas, flowers, pipes, pressed glass, garnet jewelry, ceramics, antique pistols, home-made cakes, dolls, classic cars (3), coins, old silver, stamps, guns and daggers, photographs, and tropical fish.

Open house for physicians and their families was held at the Victory Room from 6:00 to 8:00 P.M.

Because the response of the public was so gratifying, it is felt that in many instances, a hobby represents a common ground between a doctor and his patient in which the professional aspect becomes incidental. Since the best public relations come from mutual understanding, if the public can see that their doctors have the same interests as they, the doctors and their families become a more intimate part of the community.

Did your auxiliary observe Doctor's Day? If you haven't you may still do it with carnations, a party, or something as novel and successful as the Central Medical Auxiliary Hobby Show.

DEATHS

DR. SEALE HARRIS

Dr. Seale Harris died Saturday evening, March 16. Funeral services were held at the Independent Presbyterian Church, with interment at Elmwood Cemetery, Birmingham. Although he had been a semi-invalid for three years, he was only seriously ill a few days before his death. Dr. Harris was eighty-seven years old, his birthday being just three days prior to his death. He is survived by his daughter with whom he lived, Mrs. John J. Keegan (Josephine Harris), at 3822 Jackson Boulevard, Crestline Heights, Birmingham 9, Alabama.

Despite his ill health, Dr. Harris with his daughter attended the Golden Anniversary Celebration of the Southern Medical Association in Chattanooga in October and there received an official gold key evidencing his long and active membership in the Association (since 1907). He made a great contribution to medicine and to medical organizations. He was president of the Southern Medical Association in 1921-22, presiding over the annual meeting at Chattanooga in November, 1922.

The Southern Medical Association is what it is today because of the vision of Dr. Harris together with his great faith and wisdom and his fine leadership in those early years. He received many well-deserved honors and many recognitions of his great contribution to medicine not only through his contributions in the medical journals but as the author of several books, among them "Banting's Miracle—The Story of the Discoverer of Insulin" and "Woman's Surgeon—The Life Story of J. Marion Sims."

Dr. Harris received the Research Medal of the Southern Medical Association in 1949 "in recognition of his original and pioneer description of hyperinsulinism, for continued and meritorious achievements in the fields of nutrition and metabolism and especially his investigations of diabetes mellitus and his contributions to its treatment." He received the Distinguished Service Medal of the American Medical Association in 1950.

Few physicians have contributed more to medicine and medical organizations in their lifetime than has Dr. Harris. No physician in the South was more greatly beloved by the physicians of the South than was Dr. Harris. A fine friend of organized medicine has passed on.

DR. CURTIS M. ROBERTS

Dr. Curtis McWhorter Roberts, director of the Union County Health Department since 1949 and also director of the Pontotoc County Health Department, died March 15, at the Baptist Memorial Hospital in Memphis where he had been a patient for five days and after an illness of two months. He had previously been in New Albany Hospital for about a week before being taken to Memphis for possible specialized treatment, however, his condition continued to grow more critical eliminating any chance of recovery. He was 61.

Final rites were held at the First Baptist Church with Dr. Houston Hall of Decatur, Ga., a personal friend and former neighbor of Dr. Roberts, officiating after he had been flown here by a friend of his for the service. Assisting in the services was Dr. J. William Harbin. Fellow physician members of the Northeast Medical Association served as active pallbearers. Burial was in New Albany cemetery.

In compliance with wishes of the deceased, the family requested that any memorials be sent in the form of contributions to the University of Mississippi Medical School at Jackson for heart research.

Dr. Roberts was born in the Ellistown community of Union County July 20, 1895, the son of Sam Roberts and Mary Snipes Roberts and attended public schools of Union County before being graduated from the University of Mississippi in 1918 and from the Northwestern University School of Medicine with an M. D. degree in 1922. He was a member of Phi Chi, medical fraternity, a Mason, a Baptist and a member of the New Albany Rotary Club for more than 25 years. He was a member of the American Legion and a past president of the Northeast Mississippi Medical Society, a member of the American Medical Association, and for a number of years, a member of the House of Delegates of the Mississippi Medical Association.

He entered the practice of medicine at Tela, Honduras, after interning at Gorgas Memorial Hospital, Panama Canal Zone, and later became director of the United Fruit Co. hospital at Tela. He returned to the United States as director of the Lee County Health Department, and later the Union

County Health Department of which he was its first director.

He was married in 1924 to the former Angelita Delgadillo of Hela, Honduras, in Memphis, and entered private practice in Union County. His medical career included in addition to private practice as director of health departments at West Point and Booneville, as a staff member at the Mississippi State Hospital at Whitfield and as physician at the Tennessee Coal and Iron Co. hospital in Bessemer, Ala., before entering the Navy during World War II as a lieutenant commander in the Medical Corps.

He leaves in addition to his wife, one son, Dr. Curtis D. Roberts, a captain in the Air Force, Lackland AF Base, Texas; one daughter, Mrs. William D. Leader of Signal Mountain, Tenn.; one brother, H. F. Roberts of Bessemer, Ala.; two sisters, Mrs. S. V. Gullett, Blue Mountain, and Mrs. L. C. Randle of Blue Springs, and four grandchildren.

DR. N. B. WOOD

Services were held March 11 at Gunter Funeral Home chapel for Dr. Neill Brown Wood, prominent retired physican and lifelong citizen of Lowndes County who died at his home in the Woodlawn community.

Dr. Wood's fellow physicians of Columbus and the county were the honorary pallbearers.

He was born in Lowndes County, in the home which has been a family possession since 1867. The house, which before the War Between the States was known as "Kidd's Tavern," remains a landmark, the property of Dr. Wood's brother, C. L. Wood of Columbus.

Dr. Wood was the son of the Rev. Thomas Benton Wood and Mrs. Sarah Hart Lyon Wood. He was educated at old A&M College, now Mississippi State and at the University of Virginia in Charlottesville, Va., and interned at the Chicago Eye and Ear Hospital.

He practiced medicine in Virginia and in the Indian territory now Oklahoma for a few years before returning to Lowndes County to round out 49 years service as a physician. He had been an invalid for the past five years. He was 80 years old.

He leaves his wife, to whom he was married for 54 years; the brother previously mentioned and a nephew, Robert Hart Wood, of Louisville, Ky.

DR. THOMAS DOBSON

Dr. Thomas Lee Dobson of Leland died at King's Daughters Hospital in Greenville on March 29 after a short illness. He was 86.

Dr. Dobson was born at Brandon, Miss., and was graduated from Mississippi College in 1890. He was graduated from Tulane University Medical School in 1892 and moved to Dunleith, Miss., to begin his practice. In 1897 he was appointed superintendent of East Mississippi Hospital where he served until moving to Leland in 1900. He married Miss Belle Hay on April 5, 1905.

For 27 years he served as local surgeon for the Illinois Central Railroad. He was a member of the Mississippi State Medical Society and American Medical Association. He was a Methodist.

Dr. Dobson had large planting interests in the Delta. He practiced in Leland until his retirement in 1951.

He leaves his wife and a brother, Dr. Walter B. Dobson of Chicago.

DR. D. F. JOHNSON

Dr. David F. Johnson, 54, Medical staff member of Pine Forest Academy, south of Meridian, died February 22. He was a graduate of Madison, Tenn., College; and College of Medical Evangelists at Loma Linda and Los Angeles, Calif.

Dr. Johnson was a member of the Seventh Day Adventist Church. He leaves his wife, two sons, daughter, four brothers and two sisters.

DR. W. A. LAND

Services for Dr. W. A. Land, 83, prominent Neshoba and Kemper County physician for more than half a century who died at his home in the Cleveland community were held March 21.

Survivors include three sons, J. W. Land, Wichita Falls, Tex., Pettus Land, Columbia, and Chandler Land, DeKalb; one daughter, Mrs. Boy Latimer, Philadelphia; two brothers, Jim and John Land, Philadelphia, and two sisters, Mrs. Eula Scales, Union, and Mrs. Maggie Clark, Scooba.

Dr. Land was graduated from Memphis Hospital Medical College, Memphis, Tenn., in 1901.

DR. M. L. TURNIPSEED

Services were held for Dr. Maxie Lelander Turnipseed, 87, who died at his home near Sallis on February 19.

Dr. Turnipseed was a veteran physician and held large farming interests.

He was a native of Attala County and was a member of the Presbyterian Church.

Survivors include his wife, Mrs. Agnes Harmon Turnipseed, and a number of nieces and nephews including Clinton Hunt of Sallis.

Dr. Turnipseed was a graduate of the University of Nashville, Nashville, Tenn., class of 1900.

DR. SAMUEL HUSTON LIDDELL

Dr. Samuel Huston Liddell, son of the late William Huston and Anna Feris Liddell, died December 5, 1956, at Shands Hospital in New Albany.

Dr. Liddell's paternal and maternal grandparents came to Union County in 1839. Dr. Liddell was born January 28, 1889. His education began in the schools of Union County and at Mississippi Heights Academy at Blue Mountain, Mississippi. His medical training was received at the University of Mississippi and the University of Tennessee, and he served his internship in the Natchez Hospital at Natchez, Mississippi, completing his training there in 1910. Dr. Liddell began medical practice at the age of 21 and was engaged actively in the practice of medicine for 46 years.

On December 14, 1915, Dr. Liddell married the former Sally Nelson Carter of Memphis, Tennessee. He leaves his wife; two sons, Samuel Huston Liddell of Myrtle, and William B. Liddell with the United States Navy, stationed in Long Beach, California. Two sisters also survive: Miss Clara Liddell and Mrs. Roy V. Stevenson of Memphis, Tennessee. There are six grandchildren.

Dr. Liddell practiced the art of healing with patience and skill. Myrtle has lost its last doctor; Union County has lost one of its finest citizens, and his many friends mourn his passing.

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When the Ophthalmologist Needs the General Practitioner*

IRVING H. LEOPOLD, M.D.†
Philadelphia, Pa.

There are many ocular diseases in which it is not possible to reach an etiologic diagnosis by the clinical examination of the eyes alone. Not infrequently in these situations the diagnosis can be established by an astute physician whose task it is to examine the entire patient.

There are many ocular diseases which require highly specialized training in order to care for them properly. There are others that require good judgment and an awareness of the most likely etiology. In this area of ophthalmology the general practitioner who knows the entire patient may excel.

Blepharitis, an inflammation of the lid margins, can be due to staphylococci, to Morax-Axenfeld infections, allergic reactions, and to seborrhea, and can also be associated with skin manifestations of diseases such as lupus erythematosus.

Overactivity of the sebaceous glands or seborrhoea predisposes to development of seborrheic dermatitis. Scaly eruptions are found on the scalp, the eyebrows, the eyelids, the nasolabial folds, the ears, the anterior and posterior hairlines, chest, and back. Seborrheic blepharitis is one of the commonest of ocular diseases. The scales on the lid margins are greasy, and in this way can be differentiated from the adherent brittle scales seen in the blepharitis due to the staphylococcus. Mixtures of these two conditions can occur. Treatment of overaction of the seborrheic glands consisting of dietary changes limiting the fat intake and increasing the protein and carbohydrate intake fractions of the diet is not very satisfactory. Irradiation is sometimes successful but often results in scarring of the skin. The lids will usually respond to clearing of the scalp by the use of some agents such as tincture of green soap, selsun, resorsin, sulphur, mercurials, and tar ointments in gradually increasing strength. The lids will respond to 1 per cent ammoniated mercury, 1 per cent salicylic acid in petrolatum base, or to 1 per cent selsun ophthalmic ointment.

The diagnosis of this condition is aided greatly by finding evidence of seborrheic involvement in the areas of the body other than the eyes.

When the staphylococcus is also contributing to the signs, the addition of an anti-staphylococcal antibiotic to the local therapy in the form of ointment, first mechanically removing the crusts, usually brings about relief. Nesoporin, bacitracin, and sulfonamide ophthalmic ointments are helpful. These preparations will also clear up the Morax-Axenfeld type of blepharitis.

The allergic type may respond to the application of one of the ophthalmic steroid preparations. When the lids are involved in an allergic reaction, the patient will usually give a history of allergic reactions elsewhere in the body and this will be well known to the physician who has been caring for the patient for a number of years. Itching is a very frequent symptom of patients with this form of ocular involvement.

Acne rosacea, with characteristic symmetric flushing of the face associated with acneform lesions, is frequently associated with chronic blepharitis and conjunctivitis. Later this may be followed by the appearance of dilated capillaries, papular pustules, and eventually hypertrophy of the tissues. Secondary staphylococcal infection is a prominent feature of rosacea. Keratitis is not infrequent.

The therapy of facial rosacea involving the lids is not too satisfactory, but one should use all therapy which will eliminate the tendency for dilatation of the capillaries including overeating, consumption of alcohol, fried and hot foods. The gastric achlorhydria should be treated with dilute hydrochloric acid. Ultraviolet irradiation in an erythema dose sometimes is helpful. The secondary staphylococcic infection should be eliminated, and large doses of vitamin B complex particularly riboflavin portion should be administered. The results with the latter alone have not been too successful.

Bacterial invasion of the lid margins may produce a variety of signs of simultaneous involvement of adjacent skin and other areas of the body. Impetigo, sycosis vulgaris, also known as barber's itch, and erysipelas can be readily recognized by examiners who have seen the same lesions in other parts of the body. The treatment usually consists of local administration of antibiotics plus systemic administration where deep areas of the skin are involved. In erysipelas, for example, better results are obtained by the systemic use of agents such as penicillin or sulfonamides or one of the other antibiotics which act against gram-positive organisms.

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Eczemas which involve the lid are not difficult to diagnose when one is familiar with the patient's history and has seen similar lesions elsewhere on the individual's body. If one is familiar with the patient's allergic history, there would be a high suspicion that this might be the cause of the lid lesions and conjunctival lesions. Therapy primarily consists of finding the causative allergen and removing it from the patient's environment. In the meantime, local and systemic steroid and antihistaminic preparations can be of value.

There are a variety of skin lesions which may effect the eye but are rather rare. However, the diagnosis can be suspected when the lesions have been noticed on other parts of the body. This applies to pemphigus in which the eruptions usually start on the trunk and extremities. Characteristically the normal skin separates easily under slight traction, the Nikolsky's sign, and the mucous membranes of the eye or mouth may be involved in the early or late stages. Treatment of this condition has been uniformly unsuccessful, and usually lies in trying to prevent secondary bacterial infection. in protecting the eye with artificial tears when there is loss of tear function, and in preventing the lashes from rubbing against the cornea.

Erythema multiforme must be differentiated from pemphigus. The bullae on the skin in this disease do not appear to arise from normal skin but are either surrounded by a red halo or develop from the edge of an erythematous patch. Simultaneously with the affectation of the skin of the body, the lesions of the lips, mouth, conjunctiva are frequently seen. This disease attacks young adults in contrast to pemphigus which usually affects individuals of the older age group. The cause is unknown, but frequently follows the use of drugs such as the sulfonamides. There has been no specific therapy developed to date.

Lupus erythematosus which may occur as a chronic localized type, a subacute variety or an acute generalized or disseminated type, is a manifestation of a generalized vascular disorder and is usually included in the group of collagen diseases. In rare instances the eyelids are involved. When the ophthalmologist sees the lid condition, he may not be able to make the diagnosis unless the patient has the characteristic butterfly appearance on the upper half of the cheeks and across the bridge of the nose, unless the patient shows LE cells, and the family physician, internist, or dermatologist has found other evidence of this condition in other parts of the body.

Conjunctivities is a rather common occurrence, it may be bacterial, allergic, fungal, or viral in origin. If conjunctivitis fails to show a response to the chosen therapeutic measures within two or three days, it is advisable to culture the cul de sac for identification of the responsible agent. Analysis of a smear of conjunctival scrapings for cell content is often helpful. For example, the finding of conjunctival eosinophilia is a strong indication of conjunctival allergy. The predominance of monocytes in such a smear would tend to indicate viral activity. Polymorphonuclear cells are usually indicative of a bacterial type of infection, but of course can be present in some virus conjunctivitis such as that due to inclusion body conjunctivitis of the infant.

There are a number of inflammations of the conjunctiva which are associated with systemic diseases, where the diagnosis may be suspected by examination of the eye but is usually confirmed by a thorough study of the patient. The adenoviruses or the APC-RI group of viruses were first isolated by Rowe and his coworkers from surgically removed adenoids in 1953. Hilleman and Werner independently isolated another member of the APC group in cases of respiratory disease in military recruits in 1954. Many new members of this group have been isolated and evidences of widespread infection of human beings in United States, Canada, England, Scandinavia and Europe have been obtained. Although members of the APC-RI group of viruses share a small particle size and complement fixation antigen, they can be separated on the basis of virus neutralization test into at least 14 distinct serological groups. The complement fixation test identifies persons with APC virus infection but does not signify what type is involved. Neutralization tests and tissue cultures must be performed to type isolated virus and measure type-specific antibodies.

The association between virus types and symptom-complexes appears significant. Type 2 previously believed to be non-pathogenic has been isolated from eye-washings, throat swabs of adults with conjunctivitis, pharyngitis and fever. The illness may be severe and resemble influenza, but the patient recovers abruptly.

Type 3 produces follicular conjunctivitis and simulates bacterial infection. Usually one eye is involved first, and the opposite eye is infected 3 to 9 days later. Preauricular adenopathy is common. Systemic or respiratory involvement is slight. Temperature is not generally elevated.

Types 3, 4, and 7 may produce non-bacterial pneumonitis without cold agglutinin formations. The disease is not distinguishable from primary atypical pneumonia unless laboratory tests are done. Antibiotics are ineffective. Type 4 is responsible for epidemic respiratory infections among military personnel.

Types 3 and 4 have been transmitted to human volunteers and produced conjunctivitis and the disease, but this did not follow nasal instillation.

Type 8 has been isolated from persons with the disease resembling epidemic keratoconjunctivitis and may be the etiologic agent.

The constancy of ocular involvement suggests that the eye may be the portal of entry for the virus. The evidence presented indicates that volunteers can be readily infected by applying APC virus to the conjunctiva but infection is difficult to produce through the respiratory tract, and this is in support of the fact that the eye is the portal of entry.

The clinical symptoms of this conjunctivitis usually consist of follicular hypertrophy of the conjunctiva. The exudates never are purulent but always serious. Bacterial cultures are uniformly negative for pathogenic organisms, and the cytology of the exudates show predominantly mononuclear cell reactions. Occasionally an individual shows epithelial keratitis which can only be seen with a slit lamp, and the keratitis may last as long as four weeks. The majority of the patients showed not only preauricular adenopathy but also pharyngitis, occasionally fever, upper respiratory infection, cervical adenopathy, and general malaise. A high incidence of the disease during the summer months is probably related to swimming pool transmission. This has been noted previously in Canada, in the epidemics in Colorado in 1951 (Cockburn *et al*), and in the Baltimore and Washington epidemics in 1954. Recently a vaccine has been made from the adenovirus and used for the prevention of acute respiratory illnesses in military illness. (Stallones *et al*) (Hilleman *et al*).

There is a form of keratoconjunctivitis known as keratoconjunctivitis sicca or Sjogren's syndrome which is characterized by a deficient lacrimal secretion, staining areas on the cornea, dry mouth and tongue, and the mucous membranes of the remainder of the body also may be involved. The infection is common in women generally of middle age, has an insidious onset; women are usually in the menopausal age group, and there may be arthritic symptoms. Local therapy consists of the use of artificial tear preparations, usually 0.5 to 1 per cent solution of methylcellulose, or closure of the lacrimal puncta. Various endocrine preparations have been used on the basis of the menopausal symptoms as well as large doses of vitamin C. Not any of these therapies are successful in all cases.

Keratitis has been associated with a variety of collagen diseases, particularly periarteritis nodosa.

Reiter's disease represents a group of symptoms characterized by simultaneous occurrence of urethritis, polyarthritis, and conjunctivitis or keratitis. The conjunctiva is usually free from bacteria.

Antibiotic Therapy: There are available for local use on the ocular structures innumerable antibiotics such as penicillin, streptomycin, aureomycin, terramycin, tetracycline, bacitracin, neomycin, polymixin, albomycin, and erythromycin. In addition, there are other agents which have had proved value for local instillation such as the nitrofurans (furacin), sodium propionate (propion), as well as a variety of sulfonamides. The antibiotics which are usually employed for ocular use are those which are not likely to be used widely by the systemic route (Leopold). This would include those agents which have the greatest toxicity when systemically administered, such as neomycin, bacitracin, and perhaps molymixin. These agents seem to work well in combination without antagonistic activity, and with some additive and perhaps synergistic action. They produce very little evidence of sensitivity reactions and can be safely applied to the conjunctiva and lids without causing damage when employed in proper concentrations. These agents can be applied in solution form or in ointments. In dealing with acute inflammations of the conjunctiva, for example, it is advisable to apply the drops or ointment very frequently. Drops can be applied every ten minutes; every hour, every two hours, as the severity of the ocular inflammation demands. Ointments usually produce visual blurring, and it is advisable to use them only at night when the patient is retiring. If there is considerable discharge, it is helpful to wash the discharge from the eye prior to instilling the specific medication.

The stability of solutions is important, for one hesitates to demand that a patient frequently renew a solution which will last only 24 to 48 hours even when kept under refrigeration. It is also inconvenient to the patient to have to fetch the medication every hour from a particular place in order to instill the drops. It is advisable, therefore, to use antibiotics which are stable and solutions which can be carried by the patient for frequent instillation. There are plastic bottles available that allow instillation of drops without the use of separate droppers.

One should not continue the use of antibiotics indefinitely unless there are specific reasons. The continuous use of antibiotics may allow superinfection to occur, i.e., an organism which ordinarily would not flourish in the cul de sac does so because the antibiotic is killing off its competitors.

Penicillin should be avoided for local ophthalmic use as it is a frequent sensitizer and should be reserved for those cases where it is the only agent which will overcome the organism responsible for the infection. For gram positive invaders preparations of bacitracin may be given initial preference; if this fails, an agent such as erythromycin or albomycin might be the next choice. For gram-negative organisms, preparations of neomycin or chloromycetin are satisfactory. Polymyxin is an excellent preparation for many strains of pyocyaneous.

STEROIDS: It has been approximately seven years since cortisone was recommended for local use in the eye to control inflammatory reactions due to a variety of etiologies, whether they be infectious agents, trauma, or physical or toxic irritants. Since that time there have been a number of derivatives or newer steroid preparations which have been shown to have excellent anti-inflammatory activity when applied locally to ocular structures.

In addition to cortisone acetate and free alcohol we have available for ophthalmic use hydrocortisone acetate and free alcohol. Among other compounds which have been tried, is hydrocortisone T-butyl-acetate which was shown by Hollander *et al* to prolong and increase the palliative action following inter-articular injection over that obtained previously with hydrocortisone acetate.

Hydrocortisone-T-butyl-acetate appears to offer no advantage over hydrocortisone acetate in ocular disease.

An anti-inflammatory effect greater than cortisone acetate or hydrocortisone acetate was found to be exerted by 9-alpha fluorohydrocortisone acetate when compared in equal concentrations. In some experiments the effect was ten times as great because the systemic use of these newer agents is limited by their salt-retaining effect which produced more edema than encountered with the earlier use of cortisone and hydrocortisone. The chief value of 9-alpha fluorohydrocortisone would appear to lie in its local application. This compound is at present marketed in 0.5 per cent concentration and is available under the trade name of Florinef, also called alflorene.

Meticortone, prednisone, or ^{1}dehydrocortisone and meticortelone, prednisolone or ^{1}dehydrohydrocortisone appear to be approximately four to five times as potent as cortisone and hydrocortisone in their anti-inflammatory effect in rheumatoid arthritis. Their activity in ocular diseases suggests that these agents appear to be effective when systemically administered in two to four times lesser concentrations than required for cortisone or hydrocortisone. Occasionally they are successful as antiphlogistic agents in ocular diseases which have not previously responded to doses of the earlier steroids. Usually, however, they produce the same effect but smaller doses are required to bring about this action. These agents are effective when locally applied and the preparations which are available on the market are 0.5 per cent concentrations. For local activity prednisone appears to resemble cortisone and prednisolone to resemble the activity of hydrocortisone. For external ocular disease one can recommend the use of hydrocortisone or prednisolone or 9-alpha fluorohydrocortisone. These are the chief agents which are employed at present for local ophthalmic use. (Leopold, King, *etal.* Hogan, *et al*).

Topical steroid therapy has been employed for conjunctivitis of vernal, allergic, chemical, and even bacterial origin when the steroid is able to be combined with the specific antibiotic or chemotherapeutic agent. In similar fashion it can be used for lid or corneal disease. Not all corneal diseases respond to local steroids. They are contraindicated in epidemic keratoconjunctivitis and in acute herpes simplex keratitis. They do not appear to be helpful in the ocular inflammations associated with Behcet's disease. Prolonged use of steroids may lead to the development of fungi in the cul de sac. Prolonged use of steroids in combination with antibiotics may lead to alterations in the local bacterial flora, producing not only an overgrowth of fungi but also leading to the development of resistant organisms such as pyocyaneous (Mitsui-Hannabusi). One must keep in mind that the combination of steroids with antibiotics is satisfactory therapy for an infection of the lid and conjunctiva only when the organism responsible for the infection is susceptible to the antibiotic in the combination employed. If the organism is not susceptible and the resistance of the host is unable to overcome it, the use of a steroid antibiotic combination may lead to an overwhelming disastrous infection.

The ideal ophthalmic solution is one which is free and remains free of microorganisms for a reasonable length of time. It should be non-irritating, of low toxicity, of high wetting power or low surface tension, easily sterilized, compatible with other agents, and inexpensive. There are many occasions in treating external ocular diseases when the condition will respond to inexpensive drugs, to preparations of zinc salts, detergents, antihistaminics and to the use of simple saline irrigations. A trial on such medication has greater merit, when one is not absolutely certain of the diagnosis, than a shotgun prescription of a more expensive compound or combination of compounds. In most patients response will be rapid and satisfactory with the simpler, older, time-tested and definitely less expensive preparations.

Uveitis, inflammation of the uveal tract, includes iritis, iridocyclitis, and choroiditis, is a classical condition in which the etiologic diagnosis cannot be made by examination of the eye alone. Here the ophthalmologist must depend on the general physician to aid him in tracking down the cause of the inflammation.

There is no group of symptoms which is pathognomonic of the various etiologic agents which may cause uveitis. The ophthalmologist clinically divides these cases into a granulomatous variety in which the initial cause is thought to be some specific disease such as lues, toxoplasmosis, brucellosis, sarcoid or tuberculosis. The other main division is that of a non-granulomatous inflammation which is believed to be a sterile inflammation of the eye due to some hypersensitivity reaction. There is a sparsity of specific findings in the ocular examination to indicate the nature of the allergen responsible for the underlying hypersensitive state. It is necessary for the patient to be put through a battery of diagnostic procedures to detect any responsible systemic granulomatous disease or bacterial or other type of hypersensitivity. When a patient is seen, it would be advisable, if possible, to put him through tests to exclude tuberculosis, toxoplasmosis, brucellosis, sarcoid, collagen diseases, joint diseases, metabolic disturbances, e.g., diabetes, gout, virus infections, and allergies. Studies are not always conclusive.

There are many conditions in the fundus in which the ophthalmologist must have the assistance of the general physician for diagnosis and therapy. These include the various retinopathies which are due to blood dyscrasias such as severe anemias, polycythemia vera, aplastic anemias, purpura, and leukemia. The ophthalmologist can recognize that there is a retinopathy and can usually suggest that it may be due to a blood dyscrasia but cannot determine what the dyscrasia is from the fundus picture. He must rely on hematologic studies done by the general practitioner, internist or hematologist. Recurrent hemorrhages in the fundus of the young adult, formerly known as Eale's disease, has been shown in a number of instances to be due to blood dyscrasia such as sickle cell anemia.

Collagen disease can produce fundus changes such as seen in periarteritis nodosa, temporal arteritis, and lupus erythematosus. The changes that the ophthalmologist sees can be the result of the involvement of the vessel walls or can be secondary, as in periarteritis, to the hypertension and the renal damage inflicted by this condition. Occlusions of the major vessels of the fundus may be seen more frequently in diabetics, in those with polycythemia, with predisposing vascular sclerosis, and subacute bacterial endocarditis. Here again the ophthalmologist is dependent on the general physician for uncovering the underlying predisposing cause and the therapy. This may include the use of anticoagulants, of measures to control the diabetic status, and those directed toward a change in the abnormal characteristics of the blood, such as polycythemia.

Endocrine and metabolic disorders, stress diseases, malignancies, congenital aberrations all may have ocular involvement. These are a few examples of a considerable number of ocular diseases that can be properly diagnosed only by a study of the entire patient. The family physician and internist are thus in an excellent position to contribute to the proper diagnosis and care of ophthalmic patients.

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The Infertile Couple*

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In discussing the barren marriage a few statistical facts might be helpful. Approximately 15 per cent of all marriages are childless. In planned pregnancies approximately 80 per cent of the women will conceive within six months and 90 per cent within the first year. It is for this reason that the American Society for Study of Sterility has recommended that a marriage be considered barren when no pregnancy has occurred after a year of normal marital endeavor. However, if couples marry late in life or have used contraceptives for many years, probably they should seek advice after six months of attempting pregnancy.

The essential factors for a fertile mating are: 1) a husband who produces a sufficient number of spermatozoa which have an accessible passage to the outside; 2) the deposition of these active spermatozoa in the female in such a way that they have access to the cervix and can penetrate the cervical mucus and move through the uterus to the tubes at the time of ovulation; 3) a wife who produces a normal ova which enters the tube within a few hours, and which after being fertilized moves into the uterus and implants in an adequately developed endometrium.

Usually the wife is the first to seek council, and she must be advised of the importance of the male's role in sterility and the necessity of an examination for her husband as well as herself. While the gynecologist studies the wife, the husband is usually evaluated by the urologist, and then the couple's problems are discussed by both physicians. Starting with the first visit of the wife, a thorough history and physical examination must be obtained. In addition to the usual medical and gynecological history, it is important to determine how often the couple has intercourse, in what position, whether or not any lubricant is used at the time of intercourse and what the wife does immediately afterwards; such as getting up to void or to take a douche.

Many of the couples may be helped by merely explaining the physiology of ovulation and fertilization, the importance of using no lubricant and having the wife lie flat on her back for at least an hour after intercourse. Knowing this, if they will have intercourse on the expected day of ovulation with abstinence three to five days prior to it, many will get pregnant in the next month or so. The following case will illustrate this very well.

Mrs. W., a 27-year-old white female was first seen 9-27-51. No contraceptives had been used during the preceding nine months. The most significant finding in the history was that they had been having intercourse three times a week with particular emphasis on the fifteenth day of her cycle. On physical examination, everything was essentially normal except that the cervix had a mild erosion. It was cauterized at this visit. She was advised to have intercourse on the twelfth and fourteenth day of her cycle with three to five days abstinence prior to this date, until a more exact date of ovulation could be determined from a basal temperature chart. When next seen a few months later, she reported that she had missed a menstrual period, the last one starting 10-22-51. She delivered a normal, full-term, living female on 7-16-52. This patient had no difficulty getting pregnant a second time and delivered a living female on 3-28-55.

At the first visit, in addition to the instructions about intercourse, all constitutional and developmental defects are noted. If the conditions are such that pregnancy is contraindicated or make it impossible, the couple is so advised. If any of these are amenable to surgery or medical therapy, the couple is likewise informed. Minor conditions, such as chronic cervicitis, can be treated at this visit, as often it seems to prevent pregnancy. Yet all of us have seen many women with severely diseased cervices who have no difficulty conceiving. Instructions in keeping a basal temperature chart are given, and an appointment made for a BMR or another test to determine thyroid function.

The patient is asked to return in two months, bringing the basal temperature chart with her in order to determine the day of ovulation. During the two months that she is keeping the basal temperature chart, she is advised to have intercourse on the twelfth and fourteenth day of the menstrual cycle with four days abstinence before the first date. The value of the basal temperature curve can best be illustrated by the following case.

Mrs. H., a 25-year-old white female married five years had used no contraceptives the previous year. She had been to a gynecologist in another city who had taken a basal metabolism and found it to be a minus twenty-two. She was placed on two grains of thyroid a day. Her husband's sperm count made at the same time was considered normal. The gynecologist had advised her to have intercourse on the fourteenth day of her reported 28-day cycle. She was first seen by me 10-4-54. Physical examination revealed an eroded cervix which was cauterized at this time. She was shown how to keep a basal temperature chart. When she returned to the office one month later, 11-4-54, with the temperature chart, the menstrual cycle was noted to be 34 days in length with the elevation of temperature occurring on the twentieth day of the cycle. She was advised to have intercourse on the twentieth day of the following cycle. She followed instructions and pregnancy resulted the next month, the last menstrual period being on 12-1-54. She delivered a full-term living female on 9-19-55.

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If pregnancy does not ensue in two months after all pathological conditions have been cleared up, the patient's husband is advised to go to the urologist after four or five days of sexual abstinence. A thorough history, complete physical examination, routine laboratory work and a semen analysis are done. A BMR is taken if the sperm count is low. The recent work done by Macleod and Gold on men of known fertility has shown that we should lower our minimum normal sperm counts. They suggested that the minimum count should be set at 20 million per cc. with an average ejaculation of 3 cc. or a total count of at least 60 million with not less than 40 per cent activity. From their work, they have also suggested that three to four days continence is more conducive to good semen quality than more prolonged periods. With a moderate to high sperm count, Macleod advises intercourse three times a week, stating that this will maintain viable spermatozoa in the female tract at all times. Where the sperm count is between 20 and 60 million per cc., however, it is essential to concentrate on the exact day of ovulation. In an attempt to concentrate the sperm or to keep the seminal fluid from flowing out of the vagina, a contraceptive diaphragm may be inserted immediately after intercourse or artificial insemination may be done using the husband's sperm. Where the sperm count is below 20 million or complete azospermia, the chances of pregnancy are very small. Unfortunately, the urologists have not found much to help in improving a low sperm count. Rarely will rest, relaxation, vitamin E, or thyroid, if the BMR is low, increase the sperm count from the lower limits of normal. For awhile it was thought that by giving large doses of testosterone over a period of four to six weeks to inhibit spermatogenesis that the testes would rebound and produce a greater number of sperm. Although reports showed improvement of sperm counts in 18-20 per cent of men so treated, pregnancy resulted in less than 4 per cent of the total. Therefore, if after the second semen analysis, the count is still below 20 million per cc., no improvement being noted after a period of rest, they should be informed that the chance of pregnancy is slim and adoption or artificial insemination should be considered. If the artificial insemination is done with donor sperm, it is important to have a written consent of both husband and wife. The donor should be in good health, free from all chronic and constitutional diseases, have most of the characteristics of the husband and the Rh of his blood the same as the wife's. The legal status of artificial insemination is still uncertain. I feel, however, that it is a good procedure in selected cases.

If the husband after the examination is found to be essentially normal and producing enough sperm to impregnate an ovum, the wife is then further checked to determine whether or not her tubes are patent. This is usually done three to five days after the end of a menstrual period. At first, I routinely used CO_2 to insufflate the tubes. If they were patent then no further tubal patency tests were done. However, on one patient the CO_2 did not pass through the tubes at 200 mm. of mercury, so a hysterosalpingogram was done and it showed normal patency. Either the tubes were kinked or there was enough spasm to prevent the CO_2 from passing through. Two months later this patient became pregnant. With this in mind, I decided to use the salpingogram as a therapeutic measure as illustrated by this case:

Mrs. C., a 21-year-old gravida O white female married for two years had used no contraceptives after the first few months of marriage. Her husband had a semen analysis on 11-8-52, which was reported as 52 million per cc. with 90 per cent active and 76 per cent normal. Physical examination of the patient revealed only chronic cervicitis. This was treated by cauterization. A tubal insufflation using CO_2 was done 3-22-53. Air passed through at 120 mm. of mercury. An endometrial biopsy which was done 8-17-53 showed endometrium in the secretory phase. On 9-29-53 a hysterosalpingogram confirmed the patency of tubes, and she became pregnant the following month. The patient was delivered by the referring physician in July, 1954.

At present, I either omit the CO_2 insufflation or routinely do the hysterosalpingogram afterwards.

If the tubes are found to be blocked, we might be able to offer the couple some help by surgery, depending of course on the cause of the blockage. As reports keep coming in, the percentage of tubes remaining open following plastic surgery has increased. Possibly this is due to improved technique and to the use of polyethylene tubing. Two types of surgical procedures are used for blocked tubes. If the block is at the fimbriated end and the remainder of the tube patent, a fimbriaplasty procedure is done. Using the technique of

Rock, Mulligan, and Easterday, a polyethylene hood is placed over the fimbria after it has been opened. The hood is then sutured in place and anchored with polyethylene tubing going through the wall of the tube. A second operation is performed a few months later to remove the hood. About 50 per cent of the tubes will remain patent. If the blockage is at another point, the blocked portion is removed and the distal end is implanted in the fundus of the uterus. Polyethylene tubing is used to splint the tube and this can be removed vaginally at a later date. Any couple who is considering having the wife undergo surgery for tubal plasty procedures should know the chance of success, the likelihood of a second or third laparotomy and the increased possibility of a tubal pregnancy (2-4%). Also everything else in regards to fertility of the couple should be normal. Many will still want to undergo surgery regardless of the odds.

If the tubes are patent or if surgery is contemplated to establish tubal patency, it must be determined as to whether or not the woman is ovulating. The Fern test and vaginal smears are helpful in this respect. Also the post-ovulatory rise on a basal temperature chart is indicative. In addition to these, an endometrial biopsy is considered essential. This is done with a suction curette in the office and is timed to be taken within the first twelve hours of menstruation, or if pregnancy has not ensued for many years, one might take the biopsy a day before the expected time of menstruation. Endometrium thus obtained is sent to the pathologist for a H and E stain to see if it has the full effect of progesterone. Good secretory endometrium indicates that ovulation has occurred. If the endometrium is in the proliferative phase indicating anovulatory bleeding, it should be repeated. After three successive cycles have shown anovulatory bleeding, it is safe to say ovulation is not occurring. Hormones have been used in an attempt to produce ovulatory bleeding where formerly it was anovulatory but without much results. Kaplan and others have used small doses of deep x-ray to the ovaries and pituitary glands and produced ovulation where previously none could be demonstrated. No developmental defects have been found in the offspring of these women who eventually have had children. In fact, Kaplan has reported fourteen normal living third generation children. Along this line geneticists claim that defects would not be expected until around the hundredth generation.

If the biopsy shows progesterone-deficient endometrium, it might be possible to increase the progestational effect by administering 10-30 mgs. of progesterone daily sublingually or vaginally from the time of suspected ovulation until menses or pregnancy ensues.

If so far everything has been normal, the cervical mucus should be examined to see if it is hostile to the husband's sperm. The wife is asked to report to the office near the expected time of ovulation four to sixteen hours after intercourse. At this time the cervical mucus is aspirated, placed on a slide and examined under a microscope. Normally four or more active spermatozoa per high-powered field will be found. If none is found and the sperm count was normal, the mucus is considered to be hostile to the sperm. Some feel that in these cases small amounts of estrogen such as 0.1 mg. of stilbesterol should be given daily for five days before ovulation is expected. This will often improve the quality of the mucus and decrease its viscosity thus allowing the sperm to penetrate the mucus.

We also have to consider the psychosomatic evaluation of each member of the couple. Often the gynecologist or urologist is capable of determining this but occasionally the couple must be sent to the psychologist. Most of us have seen the wife of an apparently infertile couple get pregnant within a few months or a year after they have adopted a baby.

After all has been said and done—what results can be expected? Gray analyzed 400 couples who had been examined and or treated for infertility. Of the total, 31 per cent became pregnant but of those women who followed all directions for six months or more, 65 per cent became pregnant. Also in his series, he noted that the young wives had a better chance of getting pregnant than the older ones.

Evaluation of a sterile couple is most interesting and gratifying work. If the couple will cooperate and be patient and we are persistent, we should be able to help many of them have children. If during the course of the examination, a definite cause of sterility is found and considered to be permanent and we are unable to correct it, the couple should be advised so they may start procedures for adoption. Or if the wife is perfectly normal and the husband sterile, they might want to attempt artificial insemination using donor sperm. At this stage, I hesitate to state absolutely that a pregnancy will never occur. I prefer to say it is unlikely as we and they are still human beings.

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DISCUSSION

Dr. James Packer (Jackson)—In dealing with this broad subject with so many unknown factors, Dr. Wiener has pointed out a routine systematic series of steps that must be completely carried out before attempting to treat such cases. This series of steps constitute essentially those used by most of us who see such cases.

The secret of success in the treatment of the infertile couple lies in carrying out the regular sequence of each important step. By removing all of the faults instead of merely a few, we will obtain results in the form of a higher percentage of pregnancies.

Treatment of these sterility problems is based entirely on the etiology of a case and no possible fault is too trifling to be overlooked.

Usually the discovery of the cause of sterility is an easy matter as illustrated by Dr. Wiener, however in some cases the cause is due to a combination of factors and it may be impossible to correct all of them. By removing or correcting as many causes as possible the fertility level or threshold may be raised so that a pregnancy follows.

As may be expected when one deals with such a broad subject of the diagnostic and therapeutic aspects of sterility, many differences of opinion and practice arise. Not all of us will agree on irradiation of the ovaries in ovariogenic sterility.

On the subject of operative procedures to restore tubal patency, I believe it wise to be extremely conservative in spite of recent reports which may or may not improve future results. I feel that repeated tubal insufflation has a place in some of these cases and carries much less risk.

To me the subject of artificial insemination has many disagreeable points. I am repelled from this procedure by the possible moral, religious, and legal complications. It would seem to me that a physician should apply all of his wisdom and knowledge at his command to correct all possible faults in the sterility cases. I for one will leave the assumption of the god-like function of selecting fathers to the minority who use this method. This procedure will in all probability always remain in a controversial stage.

There are success reports in infertility cases following general instructions to husband and wife, the use of a temperature chart, stilbestrol pre-ovulatory, progesterone post-ovulatory, various pre-coital douche solutions at ovulation, Rubin tests, hysterosalpingograms, thyroid therapy to either partner, surgery of many types, psychotherapy, artificial insemination and following other procedures or drugs. There will never be universal agreement as to the value of any one of these, since each case of infertility has its individual problems and must be handled as such.

Some Aspects of Gynecological Endocrinology*

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Dr. Edward A. Schumann in a recent paper pointed out that in the future physicians will be giving up in a large measure the problem of curing disease and devoting themselves mainly to the problem of preventing disease. He believes that prevention and prophylaxis will gradually relieve gynecology of much of its surgery; and that the gynecologist of the future will find himself to be a combination of endocrinologist, nutritionist, and psychiatrist. To what extent Dr. Schuman is right remains to be seen, but it does seem fairly definite that clinical endocrinology is rapidly developing and that much more information should be available in the near future.

Present day endocrinology had its beginning less than fifty years ago, and has had its real development within the last ten years.

At the present time the most commonly used methods of evaluating the endocrine system of the female are indirect methods. A few of the most practical and better known methods of clinical study are 1) endometrial biopsies, 2) vaginal smears, 3) cervical mucous studies, 4) pregnancy tests, and 5) basal body temperature studies.

Endometrial biopsy—In general it may be said that the endometrium reflects the activity of the ovaries and that functional menstrual disorders result from an ovarian failure or dysfunction. In the pre-ovulatory phase of the cycle the estrogenic effect is dominant, thus causing the proliferative phase of the endometrium. After ovulation and corpus luteum formation, progesterone converts the endometrium into the secretory phase. Declining ovarian function reduces the production of estrogen and gives rise to corresponding diminution of the estrogenic or proliferative changes in the endometrium, finally resulting in the thin atrophic endometrium as seen in the menopausal woman.

In order to minimize the possibility of taking a specimen for biopsy from an early unsuspected pregnancy, the tissue is taken as soon after the onset of the menses as possible. For practical purposes the endometrial reaction at that time will indicate the maximum ovarian activity for that cycle and, therefore, the current level of ovarian activity as compared with that characteristic of the normal cycle.

Ovarian failure is not reflected in the endometrium by a series of sharply delimited classical changes. On the contrary, these classical changes merge one into the other gradually and imperceptibly. Three relative levels of ovarian dysfunction may be designated. In the first degree, there is a menstrual abnormality associated with an endometrium that is secretory in type, but less fully developed than a normal type. This suggests that although ovulation has occurred, a deficiency of progesterone exists. In the second degree, a proliferative or hyperplastic endometrium is present, suggesting an absence of progesterone or a failure of ovulation. In the third degree, an atrophic or senile type of endometrium is present, suggesting absence of progesterone and diminution of estrogen stimulation.

The endometrial specimen removed at the onset of menstruation indicates only the severity of ovarian hypofunction. It does not reveal whether the deficiency is due to an intrinsic ovarian deficiency or to some extrinsic endocrine or constitutional disease, affecting ovarian function.

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*Read before the sixty-fifth semi-annual meeting of the Delta Medical Society, April 11, 1956, at Greenwood, Miss.

Vaginal smears for the determination of ovarian function—The cytologic examination of the vaginal smear has become an important diagnostic procedure in gynecologic practice. By means of the smear it is usually possible to determine the approximate state of ovarian function, as well as the presence of infection or bleeding arising in the genital tract and also in the hands of the trained cytologist malignant cells can be identified.

The technique for vaginal smear as an index to ovarian function is simple, and can be carried out in the office in a few minutes. The degree of usefulness of this procedure will depend upon the familiarity of the doctor with the method. The test is based upon the fact that the proliferation of the vaginal epithelium is dependent upon the ovarian hormones, particularly the estrogens.

The interpretation of vaginal cytology is dependent upon recognition of the site of origin of the cells from their morphologic characteristics. The epithelium of the adult with normal ovarian function consists of three distinct layers, which can be conveniently called 1) a basal layer, 2) an intermediate layer, 3) a superficial or functional layer. These layers can be further subdivided. The type of the cell as well as the staining characteristics indicate the degree of estrogen effect. Ovarian activity can be variously estimated from marked estrogen deficiency to marked estrogen effect.

Vaginal cytology varies with the phase of the menstrual cycle. Probably the most important single factor which causes confusion in the interpretation of vaginal smear is the presence of infection. Hormonal therapy will, of course, influence the vaginal smears and by the same token repeated vaginal smears affords an objective method of determining the effect of endocrine therapy. Smears taken daily or two or three times a week through a whole cycle often afford considerable information on the nature of the ovarian cycle in the patient being studied.

Cervical mucus—Cervical mucous studies are very interesting and simple to perform. Cervical mucus is spread on a clean slide, allowed to dry in the air, and examined under the low power objective of the microscope.

Smears taken from patients at the end of the first half of a normal menstrual cycle show an interesting floral pattern, suggesting fern leaves. This phenomenon is variously termed "ferning," "crystallization," "aborization," or "palm leafing," (P. L. test). When the smear of the cervical mucus is obtained in the last half of the normal menstrual cycle, that is, after ovulation "crystallization" should not occur. The smear is densely cellular with many compact cylindrical cells of endocervical origin.

The remarkable features, about cervical ferning are: 1) it occurs only in the presence of estrogenic hormone activity and 2) it is inhibited by progesterone. Zondek and Rozin have reported that the ferning produced by one milligram of estrone is inhibited by 15 milligrams of progesterone. Thus, the presence or absence of ferning throughout the menstrual cycle should be an index to the physiologic hormonal ebb and flow resulting from ovarian activity.

Shortly after cessation of menstruation (24 hours) ferning can frequently be recognized in the cervical mucus. It is usually light and dispersed in isolated areas throughout the smear. This ferning progresses in amount until it is intense and widespread just before ovulation. Within 24 hours after ovulation with the production of progesterone, the branching arms of the fern begin to disintegrate, and within four days aborization is usually absent. The dried mucus now exhibits an increasingly dense cellular pattern which reaches its peak just before menstruation. Because of these characteristics, the test has been used as a quantitative index of ovarian activity. Interpretation of mixed patterns is based on the relative dominance of one form or the other. When neither estrogen nor progesterone is present, as in the late climacteric, the amount of cervical mucus is usually small and microscopically it exhibits a very loose cellular spread with many squamous cells and complete absence of "ferning."

An absence of ferning in the preovulatory phase is indicative of a hypoestrogenism with consequent hostility of the cervical mucus to the spermatozoa. Hence, one would feel that the therapeutic administration of estrogen at this time might help in these sterility problems. The test has been used in helping to differentiate clinical forms of amenorrhea. If there is no crystallization, it is reasoned that there is a total ovarian deficiency. Partial crystallization represents partial ovarian activity. The premenstrual pattern of dense cellularity with complete absence of any "ferning" is indistinguishable from that of pregnancy. A continuation of such a pattern beyond a missed menstruation strongly suggests pregnancy. Most observers agree that the presence of complete "ferning" rules out pregnancy. If some degree of ferning persists in early pregnancy, progesterone would presumably be deficient and consequently the risk of subsequent abortion increased.

It should be remembered that mixtures of blood with the cervical mucus prevents "ferning" and nullifies the test. On the other hand, if the mucus is contaminated by even minute amounts of salt, ferning will occur, thus giving false positive reactions from exogenous salt, having come from such sources as a recent saline douch.

It would seem that "crystallization" phenomenon may provide the simplest test for ovulation yet devised, and studies have been done correlating this phenomenon with endometrial biopsies and basal body temperatures. The complete usefulness of this procedure has, as yet, not been completely determined.

Pregnancy tests—The original pregnancy test was described by Aschheim and Zondek about 25 years ago. This test utilized mice as test animals. Since then there has been an array of other tests such as the Friedman test using rabbits and the various female and male frog tests. These are used primarily as an adjunct in the diagnosis of pregnancy and all of these tests are based upon the production of chorionic gonadotropin by the placenta. The routine use of this test in following the course of hydatid moles and in the diagnosis of chorionepitheliomas has been of much value.

The quantitative test is more useful in the following conditions because the levels of the chorionic gonadotropin can be followed.

Basal Body Temperature — Another indirect method of hormone study is that of basal body temperature grafts. This is an established method of timing the date of ovulation by graphic evaluation of the fluctuations of temperature associated with ovulation. At approximately the time of ovulation there *may be* a slight drop in temperature followed the next day by a rise of over ½ a degree. This well-known procedure enables one to determine the time of ovulation, if it occurs, and also to interpret "poor curves," as good evidence of failure of ovulation entirely or merely as a reflection of "progestational immaturity" or "delayed progestational effect."

Direct approach by hormone assays: The direct approach to evaluating the status of the endocrine glands is hormone assays and other specialized laboratory studies. Unfortunately, until recently the availability of the hormone assays, etc., has been limited to the large, teaching hospitals, which were fortunate enough to have departments of endocrinology. Now, those of us interested in gynecological endocrinology can get accurate and reliable assays on pregnandiol, estrogens, chorionic gonadotropin, and pituitary gonadotrophin. Also in studying function and disease of the closely related adrenal gland we can obtain 17 ketosteroids and corticosteroid determinations. In addition to B.M.R. and serum cholesterol determinations, we now have available an even better test—protein bound iodine (P.B.I.) of the serum.

These assays are for the most part expensive and are not needed routinely by any means, but in light of present-day knowledge there are times when they can be of great value. I believe they will gradually assume a more and more important role in gynecological diagnosis.

SUMMARY AND CONCLUSIONS

1. Gynecological endocrinology has developed rapidly over the last few years and it is felt that even greater strides will be made in the immediate future. We should, therefore, make use of present knowledge of this rather complex subject and be on the alert for future development.

2. Indirect methods of study of the various gynecological and related hormones have been presented and briefly reviewed.

3. Various hormone assays are available today. These tests are still, for the most part, expensive, but they can be of a great value to the physician when they are properly performed and intelligently used.

We appreciated a letter from Dr. J.W.D. Dicks, now of Columbia Heights, Apt. 22, Brooklyn 1, New York. Dr. Dicks is a past-president of the Mississippi State Medical Association. His kindly personality continues to reflect interest in his home state and in his friends in the State Medical Association. We know that we speak for every doctor in the state who knows Dr. Dicks when we express to him our love, our appreciation, and our best wishes.

Non-Curricular Therapeutics

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There has been a wealth of wisdom, knowledge, and experience developed by practitioners that remains unshared and unpublished. With the passing of the Good Doctor from this world his surviving confréres and civilization are denied the benefits of all his secrets.

Some perhaps simple though useful methods and procedures of beloved practitioners are herein mentioned and described.

Sincere effort is made to attribute properly these items to their originators.

Every doctor, occasionally, sees a child that has stuffed a bean, pea, grain of corn or other foreign body into the nose, ear or vagina. Attempts at removal with the usual long-shanked nasal forceps, alligator forceps, or hemostat result only in pushing the offending body farther into the cavity and thus complicating the problem of removal.

My grandfather[1] long before the turn of the century, fashioned a small hairpin bent at an angle of 45 degrees about one-fourth inch from the bow end to form a loop that may be readily slipped beyond the foreign body and remove it with amazing ease.

It is generally conceded that any body small enough to be swallowed will pass on through the intestinal tract. A solid object such as a marble may lodge at the cricoid constriction of the esophagus but with a reversal of peristalsis will be readily vomited. However, coins may not pass this constriction, which is the narrowest level in the entire intestinal tract, and, yet, because it doesn't entirely fill the lumen, it is not raised by the process of vomiting. For such an exigency my father[2] prepared a red rubber catheter with a series of slots cut at an angle of 65 degrees on opposite sides of the catheter in a staggered system. This instrument gently passed, can not possibly do harm to the pharynx or esophagus. It is passed beyond the coin, which usually lodges flat against the vertebral column in the gullet. With a fairly rapid withdrawal of the tube, the coin engages in one of the numerous angulated slots, and is literally thrown out on the floor.

This simple apparatus, certainly as safe as the usual gastric lavage tube, has prevented or saved much anxiety, worry, discomfort, pain, distraction, hard work, consultations, bronchoscopic operations, travel and expense. Infants up to the age of 24 months will not generally be able to swallow a penny, and this coin may lodge at the cricoid constriction. Older children may swallow a penny, but a nickel will lodge at this level in the child up to age four or five years. A quarter will be arrested in the throat of the child up to age 10 or 12 years, after which the quarter will clear the upper esophagus, and hence will probably pass on through the alimentary tract.

My father also designed and used an extension apparatus for fracture of the femur in the newborn or during infancy. With a base made from a 1-by-12-inch board 2½ feet long, uprights on either side 24 inches high support a crossbar for elevation of double Buck's extension in the vertical attitude. With a thin firm mattress the hips can be elevated just to clear the surface. The patient can be cared for at home with this portable apparatus, thus saving much hospitalization, time and money. In addition, transportation to the outdoors for sunshine and other outings, even automobile rides, is facilitated. Also there is a feeling of safety and confidence in the rapid evacuation of the patient in case of fire or other disaster, a source of real satisfaction to the parent.

I would not in this treatise presume to urge or even recommend any specific treatment for varicose veins and/or varicose ulcers. However, in 1931 my brother, Dr. Wesley W. Hall, appeared on the program of this society and outlined a method of administration of the injection treatment that has proved highly successful. The injection treatment is based on the sclerosing action of sodium morrhuate or other solution, on the endothelial lining or intima of the veins. Its effectiveness is inversely proportional to the dilution of the solution with the blood in the veins. The patient lies flat on his back on the treatment table with the legs hanging downward. With a tourniquet lightly applied above the knee to occlude only venous return, a long slender needle, No. 24 or smaller, is placed in the most prominent sinus or vein available. The syringe and needle are firmly anchored to the limb with the operator's hand, and an assistant raises the patient's leg to a near vertical position and removes the tourniquet, to allow the veins and sinuses to empty completely. The tourniquet is re-applied very tightly to occlude arterial flow into the extremity and the leg is lowered to the horizontal

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plane. The sclerosing solution is rapidly injected into the sinus and massaged radially from the point of injection throughout the venous system distal to the tourniquet for several minutes. The tourniquet is then released to allow arterial flow and yet occlude venous return for two minutes, then removed entirely. A pressure dressing with 4-inch ace bandage is then applied from the base of the toes to just below or above the knee, depending on the location of the varices.

Appropriate treatment of the varicose ulcer includes a bland ointment, a light covering of closely woven nylon cloth, a thick pad of gauze or Kleenex tissue, and a covering of wax paper or cellophane, all secured by 3-inch gauze bandage. An elastic adhesive (elastoplast) bandage applied spirally from the base of the toes to cover the foot, ankle, and leg to a level just below the knee completes the dressing. An Ace bandage is applied from the top of this dressing to the mid-thigh, to be removed on retiring and to be re-applied by the patient on arising.

It is believed that frequent changes of dressings are detrimental in that fibroblasts are damaged with each removal of dressings and the healing is arrested, retarded or may even be reversed. It is desirable to leave dressings undisturbed for seven days or more. The closely woven nylon applied directly to the granulating tissue facilitates removal with a minimum disturbance of fibroblasts, and almost painlessly. Waxed paper or cellophane incorporated into the latter layers of the dressing conserves tissue fluids locally, insuring soft pliable surfaces capable of more nearly normal metabolic processes. Healing just won't occur in dry, hard scabby places where there is little or no mobilization of intercellular substances. An established régime in the care of the feet and legs, including elevation to chair level while sitting, elevation on pillows while reclining, and absolute abstinence from standing still at any time, is familiar to all.

Recently a group of practitioners unanimously agreed that they were not entirely satisfied with the accuracy and uniformity in the determination of blood pressure. It was clearly agreed that most individuals are subject to momentary fluctuations due to psychic influences, whatever the patient happens to be thinking of at that particular time. They felt that much of the variation due to technique lay in the application of the stethoscopic diaphragm to the patient's arm. Some examiners use the Ford or cone-shaped chest-piece for taking blood pressure. Others use the flat diaphragm type chest-piece of varying sizes. Four different diameters are supplied by one company. Further, there are variations in the application of the diaphragm to the arm, it being at times centered over the brachial artery, at other times the artery being at or near the edge of the diaphragm, and occasionally the diaphragm is actually located distal to the artery. Also the diaphragm may be placed completely underneath the pneumatic bag, under the edge of the bag in varying degrees, or below or distal to the bag at varying distances.

In order to reduce some of these variations we have adopted the use of the Fleischer model stethoscope diaphragm. The black web band designed to secure the diaphragm to the arm has been discarded and the instrument is permanently sewed to the under side of the cloth bag or cuff. Thus its relation to the pneumatic system is constant. The operator with reasonable care and attention applies the cuff to the arm in the same manner each time, and there are no further variations possible. Blood pressure readings take on more significance and reflect in the examiner more confidence in his determinations.

The knee-chest position is probably the most nearly universally used procedure for the puerperium. Almost everyone uses this method of treatment for subinvolution and retroversion of the uterus. We have seen hundreds of patients who at some time during their obstetrical or gynecological history had been advised to use the knee-chest position. However, we have yet to encounter a patient who has the least understanding of the procedure, the mechanics thereof, or its immediate and ultimate objectives. At best the patient has been handed an illustration of the knee-chest position and told to assume the position for a specific period on a certain number of seances daily. It is believed that 95 per cent of the time that patients have spent in this grotesque and unassuming attitude has been wasted.

The patient should be placed on the examining table in the knee-chest position and instructed to reach around the thighs with both hands to separate the vulvae. Once this is accomplished, she will never forget it, and will subsequently be able to attain satisfactory results. There will be an inrushing of air into the vagina and the vault will be distended and elongated from the negative abdominal pressure. Barring adhesions or other obstructions, the uterus will fall forward into anteversion. Some deep massage of the lower abdomen with the patient's hand or closed fist may influence the results of the procedure to advantage. Also this procedure will consume not more than one or two minutes at the most, and will not prove the least bit tiring or exhausting.

During the past few years there has been an increasingly greater number of people allergic to zinc oxide adhesive tape. By far the best answer to this problem in clean, non-infected, un-contaminated wounds, lacerations, and operative incisions is to omit dressings entirely. Dr. Leslie V. Rush of Meridian has for a number of years painted such wounds with the pediatric solution of citri-sulfas, a thick, pink liquid, using six or more coats or applications at 10-minute intervals to form a thick, though pliable, protective crust. This allows freedom of movement and massage of the surrounding tissue, and precludes the necessity of any other type dressing. Operative patients so treated ambulate early, and are characterized by the "When-can-I-go-home" complex from the second postoperative day. Those patients allergic to zinc oxide adhesive whose discharges or drainage require dressings may not be sensitive to the hypo-lergic adhesives that have been available several years. However, there still may be irritation from such a dressing. In these cases, Scotch cellophane tape has proved satisfactory in securing many of these dressings with comfort to the patient. Short and narrow strips are used, and should be applied loosely. Patients who have previously abhorred regular adhesive are most grateful for this type of dressing.

Also this same cellophane tape has been used to advantage in closing clean, superficial wounds without the aid of sutures or clamps. Let us not forget collodion dressings made with wisps of cotton held in place by many thin applications of collodion. This is an old procedure. Then there are individuals who for one reason or another cannot tolerate either type of adhesive dressing, who may be happy with a dressing secured by a band of muslin cloth or elastic bandage very loosely wrapped around the trunk or limb. The gauze pads covering the wound should be pinned or stitched to the outer bandage to prevent slipping.

In uncomplicated diabetes mellitus with a blood sugar threshold not extremely high, observation may be entirely adequate by having the patient report to the office in mid-morning with four urine specimens obtained as follows: 1) after lunch previous day, 2) after supper, 3) before breakfast, 4) after breakfast. A fifth specimen may be obtained on arrival of the patient at the office.

The patient on a low carbohydrate-high protein-high fat diet of adequate caloric value may be maintained on a dosage of P.Z.I. or lente insulin to allow a show of sugar of plus 1 or plus 2 on one or two occasions during the day, provided the remaining specimens are consistently sugar free. This moderate range avoids the dangers of both hypo-glycemia and of diabetic coma.

Many years ago Dr. H. L. Cockerham, an honored member of this society who only a few months ago passed on to his reward after a long and fruitful career as physician, gentleman and friend, often commented in summing up this his own régime of diabetic management, "I don't mind my patients running a little sugar once or twice a day, provided they are sugar-free the rest of the day."

It is generally agreed that one of the most difficult little jobs is tying up a finger, and especially an amputated digit. Dr. T. J. Barkley simplifies such a dressing and puts the thickest layers of padding at the end where needed by cutting a 4-by-4 gauze pad half across at two points, and folding the three tongues thus produced over the end or dorsum of the finger as desired. The whole is secured by circular one-inch gauze bandage.

I was privileged to practice medicine with my father for three years prior to his death in 1937. On one occasion an harrassed, distraught young mother stormed into our office with four prescriptions that I had given her the day before for her child. One box was clearly labeled, "Take 3 tablets twice a day," the second "Take 2 tablets 3 times a day;" one bottle "Take 1 teaspoonful every three hours" and the other bottle "Take 1 teaspoon every four hours." She explained that she was trying to administer the medicines exactly as ordered, and she found that on some hours she was giving only one medicine, while on certain other hours she should be giving two or three medicines, or is it all four? She felt completely lost, and didn't know which medicine to give next. Frankly, I too was lost at the moment, and although I had written the orders, I was unable to straighten out her dilemma. My father, with the wisdom of almost a half century of practice behind him, suggested that a common denominator be adopted, and all medicines be given at the same time. He changed the first order to 1 tablet every 4 hours; the second to 1 tablet every 4 hours, also the third to 1 1/3 teaspoonfuls every 4 hours; and let the fourth remain 1 teaspoonful every 4 hours. In this manner the patient was getting the same amount of medications in the 24-hour period, and was not disturbed during the intervening four-hour periods.

Simplifying any procedure is an advantage to both patient and doctor. Many an older doctor sitting at the bedside, has called for the clock and marked it at 4, 8 and 12 o'clock or 3, 6, 9 and 12 o'clock with the admonition to give the medicines when the hour hand passes these particular marks. Not only do the illiterate profit by this, but the most intelligent clientele may need this simple reminder.

In summary I wish to state that herein all mentioned and described ten items of treatment that to my knowledge and observation have not appeared in the literature in their respective manners.

The Potential of Pathology as a Medical Specialty

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Today there is an urgent need for more physicians to choose pathology as a career. The supply of pathologists is far from adequate to meet the needs of our population, particularly with the increased demand in the past decade for the services rendered by pathologists. Rosahn[1] in the Yale University School of Medicine's 1956 Symposium on Careers in Medicine stated that there are approximately 3000 pathologists in this country. It is safe to say that if this number were more than doubled it would not exceed the number necessary for the best medical practice. A 150-200 bed general hospital should be able to support a pathologist; thus any town with a hospital of this size is large enough to attract such a specialist.

Pathology as the study of the alterations of function and structure in disease embraces all of medicine; it is the most general of the medical specialties. For this reason it is of great appeal to one who is reluctant to limit himself to any one particular aspect of medicine. The general practitioner looking for a specialty can do no better than a career in pathology.

In the practice of laboratory medicine the pathologist's duties may be divided into several broad categories. His practice can cover them all or it may be broken up into smaller specialties; the latter is often the case in larger hospitals or medical centers. His primary duty is to assume the over-all responsibility for a diagnostic laboratory. Surgical pathology, including frozen sections for rapid diagnosis, will make up a large part of this activity as will autopsy pathology. The pathologist is also responsible for the laboratory work in exfoliative cytology, hematology, chemistry, microbiology, serology, urinalysis, and the blood bank, both in supervising the procedures and in interpreting their results. With the data obtained he serves as a consultant to the attending physician and recommends therapy.

The pathologist's duties also encompass the teaching of medicine, not only in academic centers but also in the smallest hospitals where it is his responsibility to teach the hospital staff and other physicians through studies and demonstrations on their laboratory material as well as through clinicopathological conferences. He also directs the training of laboratory personnel and contributes to the teaching of nurses and other hospital workers.

Numerous physicians, general practitioners and specialists alike, harbor an ambition to do research which is unfulfilled due to the nature of their practice and a lack of equipment and other facilities. Research in pathology is not limited to the research institution or teaching center. Every pathologist has the opportunity for experimental studies with the equipment and material at hand in his own laboratory. Because of its close association with clinical medicine as well as with the basic sciences, pathology is the ideal specialty for experimental medicine. The possibilities for research in pathology are well stated by Moore:[2] "Pathology is a science which has no methods of its own. It applies to problems of disease the methods and the procedures of the anatomist, the chemist, and the physiologist. With this concept there is no limit to the field."

The specialty of pathology offers advantages perhaps unattainable in other fields. The shortage of pathologists places the pathologist in a favorable position financially; he is able to pick his location with a wide range of desirable choices. According to a recent survey[3] pathology in 1955 ranked fifth in net earnings among 30 selected specialties, following radiology, neurosurgery, orthopedic surgery, and plastic surgery in that order, with median net earnings among self-employed pathologists of $22,050 annually. This may be compared to the median net income for general practitioners in the same year of $14,817. Working hours as a rule are more regular and more easily regulated in pathology than in other specialties or in general practice; this may in part account for the greater life expectancy of pathologists as compared to other medical specialists.[1]

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†Department of Pathology, University of Mississippi Medical Center, Jackson, Mississippi.

There are advantages other than financial that are even more rewarding. The pathologist is enabled by his unique position to see the most interesting aspects of material from a large number of physicians. What he sees are the highlights of the cases, without undergoing the less interesting duties of the initial work-ups and patient care and at a time when the case is of most interest madically speaking. He is spared the endless and time-consuming visits from patients with no real ailments and the necessity of becoming burdened with irrelevant data. He can remain conversant with every field of medicine and therefore is challenged constantly to remain abreast of new developments.

The pathologist commonly meets various misconceptions about his specialty, including the belief that pathology is such a concise science that every problem is solved by the preparation of a microscopic slide. Such is not the case. Black and white are not the only two colors in the pathologist's book; there are also countless shades of gray in between. Difficult decisions are to be made every day in which judgment is of the utmost importance.

One hears that autopsy pathology is a science in which only the end result is seen. The dynamic features of the development of disease are realized through accumulated experience as one sees the natural history of disease at all stages. The purpose of pathology is fulfilled only when the observations made during life are carefully correlated with those made during the postmortem examination.

To the complaint of a lack of patient relationship one can answer that the limiting factors here have been the shortage of pathologists and their lack of time. The pathologist can have as close a patient relationship as he desires by spending the amount of time he wishes for examination and conference with the patient. Actually there are those who do not feel the need of a close doctor-patient relationship for satisfaction in their careers; such a relationship, however, is available.

Some hold the opinion that the specialty of pathology offers no contact with people and they picture the pathologist as being constantly buried alone in the laboratory. The ability to get along well with other people is as important to a pathologist as to any other physician, for he needs to have satisfactory relationships with other doctors, hospital and laboratory personnel, and all with whom he works. These congenial professional relationships, furthered by the lack of a competitive spirit between pathologists and other medical men, can be especially appreciated by the physician who has been denied adequate medical companionship.

In planning one's residency training in pathology one may seek board certification in anatomical pathology, which includes surgical and autopsy pathology; in clinical pathology, which includes the remaining laboratory responsibilities; or in a combination of the two. Actually this terminology is not entirely suitable since all pathology dealing with the solution of clinical problems is clinical pathology and therefore in reality clinical phatopathology includes autopsy and surgical pathology. Three years of post-internship training are required to qualify for either anatomical or clinical pathology examinations, and 4 years of training make one eligible for certification in both categories. Residencies are easily obtained because of the shortage of residents. In 1955, 36 per cent of the 1797 resident appointments were not filled; this can be compared to a 9 per cent vacancy among the 4936 surgical residencies.[1]

Special credit may be obtained toward eligibility for the pathology board examinations by any of the following: (1) teaching experience in the basic sciences, (2) military assignment in pathology, (3) straight internship in pathology, (4) research experience, and (5) student experience in pathology past the second year of medical school. Further details of accreditation are available in the Directory of Medical Specialists or in the Journal of the American Medical Association.[5]

Having completed his training the pathologist may practice with one of several types of arrangements. He may assume the responsibility of a hospital laboratory, either by renting the space in the hospital and supplying his own equipment, by renting both space and equipment from the hospital, or by a percentage division of laboratory income when the hospital owns both space and equipment. The pathologist should not be, or seem to be, actually employed by the hospital as he often has been in the past. Another possibility for the practice of pathology is to operate an independent laboratory apart from any hospital connection. Finally there are the salaried positions in academic, government, or research institutions.

To the individual the practice of pathology can be a worthy contribution to medical care as well as interesting, productive financially, and personally satisfying in all ways. The addition of personnel will strengthen the position of pathology as the cornerstone of modern medical practice and research.

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MISSISSIPPI ACADEMY OF GENERAL PRACTICE

SYMPOSIUM ON DIARRHEA

Don't forget the date: Thursday, June 13.

And the place: University of Mississippi Medical Center.

All members of the Mississippi State Medical Association are invited. No registration fee will be charged. Academy members will receive five (5) hours of Category I credit for attending.

JANUARY 22, 1958

That is the date of the latest post graduate program on the M.A.G.P. planning board. It is being co-sponsored with the University of Mississippi School of Medicine. The program committee is already working to obtain the best speakers possible. This meeting will be supported by Lederle Laboratories. You'll hear more about it as plans develop.

OUR DESTINY

"When on September 1 last year we formally opened (our headquarters building), in a manner of speaking, we dedicated a cathedral testifying to our faith in the destiny of the family doctor in America . . . This destiny will be a noble or mean one according to the zealousness with which we strive for the first of the objects the Academy's founders set forth in its Constitution: To promote and maintain the high standards of the general practice of medicine and surgery. Steadfast devotion to this aim will bring the Academy to the height of influence and prestige its founders hoped for . . .

"In the fulfillment of this destiny, it seems to me, there will emerge a new physician of tomorrow. He will be synthesized in the crucible of the American Academy of General Practice and he will be the prototype of the ideal physician for which the American public has expressed a profound desire.

"With continued subdivision of the profession, with new subspecialties being created almost every year, an adequate supply of competent and well trained general practitioners becomes an even greater desideratum in our system of medical care. This fact is decreed by our social system, in which the family is basic, and in the current concept of preventive medicine, in which comprehensiveness is the objective."

—Mac F. Cahl, Executive Secretary, AAGP (From his address to the Congress of Delegates in St. Louis, March 23, 1957.)

NEWS BITS

The fifteen Academy members who attended the Cardio-Vascular Seminar at the University of Mississippi Medical Center received up to 30 hours of Category I credit. Those registered were: Charles P. Bass, Columbia; Max D. Berman, Jackson, Perrin L. Berry, Brandon; J. R. Cavett, Jr., Jackson; Moncure Dabney, Crystal Springs; Thomas M. Davis, Jackson; Alex Gordon, Jr., Morton; W. B. Hickman, Louisville; S. K. Johnson, Pelahatchie; William C. Kellum, Tupelo; John C. Longest, State College; A. K. McMillan, Lucedale; Louis F. Rittelmeyer, Jackson; E. L. Whitfield, Florence; and W. J. Witt, Jackson.

Mississippians attending the AAGP Assembly in St. Louis who were not listed in this column last month were: Lawrence Brisco; Tupelo; W. D. Fitzgerald, Cleveland; W. T. Mayer, McComb; J. J. Kazar, Tchula; Byron Mayo, Drew; and E. E. Ellis and Daniel McLean, Laurel.

The MAGP luncheon at the State Medical Meeting in Biloxi will be held in the Magnolia Room of the White House at 12:30 on Wednesday, May 15. Come and bring a prospective member.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. ..... Cardiology
HARVEY F. GARRISON, Sr., M.D. ..... Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center ..... Surgery

CARDIOLOGY

STOKES-ADAMS DISEASE — AN HISTORICAL REVIEW

(Frank G. McMurry, Washington, D. C.)

As the title suggests, this is an historical review of the first descriptions of Stokes-Adams attacks by the original observers, Morgagni 1761, Stokes 1846, and Adams 1827. Recent papers have urged the retention of the name Stokes-Adams disease, using the word disease rather than the word syndrome, and implying by disease, attacks of syncope due to changes in AV conduction, or in the idioventricular pacemaker, or in the appearance of ectopic ventricular foci. The title "Stokes-Adams Syndrome" would apply to those attacks of syncope due to vagal action or slowing of ventricular systole of myocardial origin.

This paper suggests that very few cases are related to vagal action and that the vast majority of syncope associated with a slow pulse or with absence of pulse is usually on the basis of organic atrio-ventricular block, usually secondary to arteriosclerotic disease, but occasionally related to such unusual entities as syphilitic gummata, etc. Later work indicated that attacks of syncope, secondary to a slow or absent pulse, may actually have one of four basic electrocardiographic mechanisms. (1) Ventricular standstill. (2) Ventricular tachycardia, with or without ventricular standstill. (3) Ventricular tachycardia or ventricular fibrillation, or both, without ventricular standstill. (4) Extreme bradycardia with complete heart block. Any of these cases may show alternating rhythms but the essential factor is a failure of cardiac output, due to slow, absent or inefficient ventricular activity.

The relationship of specific medication to these varying types is also emphasized, and it has been shown that in the presence of ventricular standstill or extreme bradycardia with complete heart block that a drug such as Epinephrine, Ephedrine, Paredrine, and later and most ideally, Isuprel, was indicated. Also, the cardiac pacemaker, described by Zoll, is mentioned and its obvious efficiency in tiding patients over a period of ventricular standstill that would otherwise have proved fatal. It is also emphasized that certain drugs are absolutely contra-indicated in the treatment of Stokes-Adams attacks. It might seem logical to use anti-fibrillatory drugs, such as quinidine and Pronestyl, in the prevention or treatment of Stokes-Adams attacks due to ventricular tachycardia or ventricular fibrillation, but actually these drugs are not only useless but extremely dangerous. Experience has shown that when partial or complete AV block exists, quinidine or Pronestyl tends to produce a series of events marked first by ventricular extrasystoles and by ventricular tachycardia and fibrillation, and sometimes by death.

The actual mechanisms leading to Stokes-Adams attacks are understood in terms of the electrocardiogram, but the reason for these changes are rather mysterious. Since the attack begins and ends suddenly, one would assume that the underlying mechanism was reversible, and two factors acting in such a manner would be neurogenic reflexes and changes in caliber of vessels or both. Nerve reflexes could increase or decrease the formation of impulses passing to the ventricles, or a sudden lessening of blood flow in arterioles supplying the conduction tissue presumably could rapidly alter conduction. These speculations are possible but not probable at the present time.

COMMENT

In the last ten years there seems to have been a good bit of confusion in the medical literature as to exactly what Stokes-Adams disease is. A good definition would be attacks of syncope related either to slowed, absent or inefficient ventricular activity, usually secondary to changes in the conduction system, either of a neurogenic or vascular nature, and resulting in a clinical syndrome or syncope, convulsions, slow pulse, etc. Clinically, all of these people suffer the results of forward failure, even though the electrocardiogram in some cases may show a rapid ventricular tachycardia or ventricular fibrillation. Obviously these rhythms are grossly inefficient in terms of cardiac output, and in no case should these two rhythms be treated with cardiac depressant drugs.

Combined use of Isuprel, sublingually, orally, intramuscularly or intravenously, in addition to large doses of atropine, to depress any supposed vagal over-activity, and the emergency use of adrenalin is stressed. Newer medication, such as oral molar Sodium Lactate from 150 to 300 meq. orally at a dose, has been stressed by Bellet in the recent literature as a means of overcoming these attacks of AV heart block and decreased ventricular output.

PEDIATRICS

Observations on the V-Cillin in Pediatric Practice. M. Alvarez-Pagan, D. C. Rees and G. F. Conway. J. Pediat. 50:39-43 (Jan.) 1957 (St. Louis).

The acid stability of phenoxymethyl penicillin (penicillin V) has been established. V-cillin is a fruit-flavored pediatric oral suspension of penicillin V. This form of penicillin V was used to treat respiratory tract infections in 84 children observed in a general pediatric clinic practice. It was well accepted and tolerated without notable side effects by 78 of the 84 patients. Penicillin V proved to be clinically effective in combating the respiratory tract infections due to hemolytic streptococci, Staphylococcus (Micrococcus) aureus, and Diplococcus pneumonia. Results compared favorably with those that might have been expected from the intramuscular administration of 300,000 units of procaine penicillin G twice daily. Consequently the authors feel that in children the majority of respiratory infections requiring penicillin therapy may be treated successfully with oral penicillin V. Since the blood level of penicillin V begins to decline after 4 hours, with detectable levels remaining 6 hours after oral administration, the authors gave 250 mg. (400,000 units) as the initial dose and 125 mg. (200,000 units) every 4 hours or 4 times a day.

COMMENT

We have been using V-cillin in our clinic for some time and it is a very valuable asset to our usual treatments in these cases. Most all of us are using it along with other remedies for the treatment of upper respiratory infection and such other cases that require use of penicillin at the same time.

One morning Smith looked over his garden wall and said to his neighbor: "What are you burying in that hole?" "Oh," said the neighbor, "I'm just replanting some of my seeds, that's all." "Seeds!" shouted Smith angrily. "It looks like one of my hens." "It is," said the neighbor, "the seeds are inside."

SURGERY

CONSTRUCTIVE HIP SURGERY WITH THE VITALLIUM MOLD

By OTTO E. AUFRANC, M.D.

Boston, Massachusetts

(Taken from the Journal of Bone and Joint Surgery, Vol. 39-A, No. 2, April, 1957.)

This article is a report on the cases of vitallium cup arthroplasty of the hip over a 15-year period from the Massachusetts General Hospital. During these years 1,000 patients have had a surgical reconstruction of the hip and a vitallium cup placed over the head of the femur. More than 200 of these patients had arthroplasties of both hips. The results are divided into the clinical evaluation of the surgeon and the evaluation made by the patient expressed as his satisfaction with the result. In the clinical evaluation by the surgeon 45 were rated as excellent, 175 rated as good, 600 rated as satisfactory and 180 rated as unsatisfactory. In the opinion of the patients 460 were rated as excellent, 360 were rated as good, and 180 were rated unsatisfactory. It is apparent that the patients were gratified by the improvement of hip pain and function rather than comparing the operated hip with the normal hip as did the surgeon.

Two hundred and twenty-five of these patients required subsequent supplemental surgery in the form of adjustment of the vitallium cup, excision of scar tissue, or replacement of dislocated cups. In evaluating the durability of the arthroplasty procedure over this period the patients were examined to determine whether or not they needed to use a support in the form of a cane or crutch after their convalescent period. In this regard 27 per cent required a cane or crutch all of the time, 40 per cent required a cane or crutch a portion of the time, and 33 per cent required no support at all. It is assumed that each patient required some support prior to his or her arthroplasty. Pain on walking was reported by all but 22 per cent of these patients to varying degrees. However, in only 17 per cent of the patients was the pain severe enough to make walking undesirable.

Vitallium cup arthroplasty was the procedure of choice in cases of bony ankylosis of the hip, traumatic or degenerative arthritis of the hip, old and fresh fractures of the acetabulum, rheumatoid arthritis before and after ankylosis, old septic hips with and without draining sinuses, and as a salvage procedure following failure of other procedures including the insertion of a femoral head prosthesis or other types of arthroplasties. With the exception of the immediate postoperative complications of thrombophlebitis, wound sepsis, and dislocation of the vitallium cup, the long term complication most commonly encountered was reformation of bony spurs about the hip preventing motion of the cup within the acetabulum. It was for this complication that most supplemental surgical procedures were done to increase the range of motion. Absorption of the femoral head and shortening of the femoral neck under the vitallium cup occurred in only 10 patients. Microscopic sections were made of tissue immediately above the vitallium cup in the acetabulum and covering the head of the femur below the vitallium cup at the time of supplemental surgical procedures. These slides revealed that the raw bony surfaces produced at the time of the previous surgery became covered with heavy fibrocartilage that served to prevent further bone erosion. In order to achieve good results following the arthroplasty a carefully supervised program of gradually increasing exercises and weight bearing was enforced. Frequently this reconditioning period covered many months or years.

The author concludes that vitallium cup arthroplasty is a sound surgical procedure when properly applied and that good to excellent results will be most frequent after careful surgery and proper postoperative management according to the principles of bone healing and muscle control.

COMMENT

This article reflects the experience of the group at the Massachusetts General Hospital over 18 years and comes from the major center for cup arthroplasties in this country. Arthroplasty of the hip for the relief of pain and restoration of motion in a diseased hip has become a more frequent consideration in our aging population. This procedure should in general be reserved for patients in whom motion with some pain is a necessity. Patients for this procedure should be selected carefully and be made to understand prior to surgery that there will be some pain following their convalescence. They must be willing to accept this discomfort in exchange for the gain in motion. In many instances a preferable procedure would be surgical fusion of the hip in a functional position with the certainty of a painless joint. It should be pointed out that the cup arthroplasty does offer the opportunity for removal of the cup and subsequent surgical fusion in those patients who do not get the desired result. This opportunity is much less available in those patients who have had complete replacement of the femoral head and neck by a metal prosthesis.

It would appear from this article that cup arthroplasty, in patients who of necessity require hip motion, offers a good prognosis for use of the hip for a substantial period of time. It follows that these patients must be willing to accept the risk of some discomfort, that reconstruction be performed accurately, and the convalescence be carefully supervised over a considerable period of time.

W. F. Enneking, M.D.

Doctor . . . . . .

Visit our booth at the state meeting!

Let us help you keep your medical references up-to-date. . . . Too, now is a good time to browse a little and pick up that new book on diagnosis or clinical pathology. . . . .from SAUNDERS.

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THE MISSISSIPPI DOCTOR

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INDIGENT MEDICAL CARE

Guest Editorial

Lawrence W. Long, M.D.

Mississippi is long overdue in making a study and reevaluation of our Charity Hospital and Medical Care of the Indigent Program.

Charity, medically indigent and service cases all should come into one category and if they are able to pay anything, (many can pay a small amount especially if they have a small hospital insurance policy) then that amount should be applied on the hospital bill for their care. Any physician in Mississippi is glad to furnish his services gratis to the state and assign a small medical or surgical fee to the hospital in this class of case charity, medically indigent, service, or teaching cases.

The expansion of the State Hospital Commission Program in the Hill-Burton and community hospitals, together with the optimum use of the University Teaching Hospital to care for the indigent, resolves itself into a community and state responsibility. It has been reliably found that about 35,000 indigent hospital cases per annum occur and can be safely and adequately cared for under a system of expansion of the State Hospital Commission Program, and most often the patient will be best cared for in his home community.

The four state charity hospitals, located at Meridian, Laurel, Natchez, and Vicksburg, should be removed from the separate appropriation plan and continued on a community support plan plus the per diem fees allowable under the State Hospital Commission. In turn, they should be then a community and not a state responsibility. These four hospitals and all other qualified hospitals should be opened to the Hospital Commission per diem allowance for the indigent; therefore, all indigent care would be placed under the Hospital Commission for the Indigent. In turn, all physicians' services would be furnished gratis on these cases.

To tie together the indigent cases throughout the state's many community hospitals with the State Teaching Hospital located in Jackson there should be a transport system evolved which should consist of an ambulance and driver in the north and one in the south of the state to exchange teaching cases between the State Teaching Hospital and the community hospitals, as well as those cases requiring specialized medical or surgical care.

Physicians treating patients in the charity wards of community hospitals and those treating patients in the University Teaching Hospital do not expect a fee to be paid them for this service since they are willing now as always to give their services to the needy and in the cause of teaching the prospective doctor.

The Commission on Hospital Care should administer all funds for hospital care for the medically indigent and any additional monies needed for the teaching hospital should be a separate and additional appropriation based on the needs to care for and do research work on those teaching cases over and above the per diem allowed by the Hospital Commission.

To reiterate, I believe the State Charity Hospital Program should be re-evaluated and expanded, using the Social Welfare Department as an investigating agency to be certain those eligible come under the plan and no one else.

If we will all make known to our lawmakers these points, I am certain they will be better informed and know better how to evolve the plan through our legislature, namely:

1. Charity, medically indigent, service cases, or teaching cases should be classed as one for care and teaching or research.
2. The Social Welfare Department of our state should be the investigating agency to be certain the program is not abused.
3. The four state charity hospitals should be turned over to their respective local communities and operate under the Hospital Commission.
4. The community hospitals' charity wards and the locally operated present charity hospitals (4) should be joined with the University Teaching Hospital for better patient care of the indigent.
5. All approved local hospitals should be opened to the Hospital Commission Program.
6. A transport system for the indigent should be established.
7. Physicians do not, have not, and would not charge any fee for treating patients in the charity wards of local hospitals or the teaching cases in the University Teaching Hospital.
8. All patients cared for under the State Hospital Commission Program should be paid for at the same per diem rate. Additional appropriation for the patients in the teaching hospital should be made based on the need for teaching and research on such patients.

We can all work toward a betterment of our present plan to care for the needy.

STATE MEETING

As we go to Biloxi to the Buena Vista Hotel to attend another State Medical Association, it will probably attract the largest attendance ever assembled for a state meeting. It will be good to breathe again the balmy air of the Coast, activated by the spirit of Jefferson Davis, and touch shoulders with this cosmopolitan area. The Coast has and has had many outstanding doctors. The spirit of Dan Williams still lingers, while Dr. Parker continues very much alive and active. Mrs. Parker activates the spirit of the Auxiliary.

Fishing and other recreation will be in evidence. Alumni banquets will be fine for fellowshipping.

We are sure the scientific program will be good. The business of the association will take much time. Every doctor who can at all, should attend his state medical association at each annual meeting.

DR. MILTON ADAMS

The passing of Dr. Milton Adams of Memphis was a distinct loss to the field of plastic surgery in Memphis, the mid-South and the nation. He was a genius in the field of reconstructive and reparative surgery. He was a perfectionist. He was never satisfied except with the best. Milton could look at a crooked nose or a marred face and immediately focus in his mind the best improvement that might be made. His limitless resourcefulness would find the way. His pride in doing a superb job for his profession and his specialty commanded the best in everyone around him; but deeper yet was his personal interest in his patients, for whom he strove to attain nothing less than perfection. The joy and actual rehabilitation he brought thousands of patients if put in dollars would build a monument to the sky. Much of his work banished personality complexes and brought life more abundant in scores of ways.

Milton was a man of deep convictions and unwavering courage, a fine diplomat, and outstandingly able in public relations. In medical ethics he was sound, but at the same time consistently loyal to his patient. He was very strong in keeping medicine and state separated as far as possible. The doctor-patient relationship was sacred to him.

Although the spark of genius in Dr. Adams was apparent, its presence played no conceit with him. Unsurpassed devotion to every detail of every operation in its relation to the person as a whole was his code. Time was no deterrent. His personal friendship with leaders in his specialty and his accurate estimate of their worth was most remarkable. His impress on his patients and the profession will not dim for time to come.

For four years Dr. Adams was associated with the Anderson Clinic in Booneville and was a member of the staff of the Northeast Mississippi Hospital. He married the queenly and accomplished daughter of Dr. and Mrs. Frank Taylor of Booneville. To her and the two sons and the two daughters we extend deepest sympathy.

ARKANSAS RECEIVES NEW MONEY

We wish to congratulate the medical profession of Arkansas and every citizen of the state on the dedication of its 13-million-dollar medical center on April 25, 1957. This will mark a milestone for medical history in Arkansas and perhaps for the mid-South. Mississippi has a great nine-million-dollar medical center, but Arkansas surpasses us by four million dollars. Arkansas, Mississippi and Alabama have medical schools that may become outstanding for training undergraduate students.

The day is rapidly coming when a medical school's responsibility will not stop with the students within its walls nor with the city in which it is located. Our four-year medical school and that of Arkansas are destined to reach every nook and corner of our commonwealth in service to the practicing physician and in turn to the people. For the training of undergraduates, for health officers, and for medical research, these schools can easily be at the very top. Every doctor in our state needs to feel that he has a part in our medical school. In his daily work the practitioner can aid the march of medicine by his observations and his records.

Some would have us believe that we have too many medical schools, but we do not. In twenty-five years from now the South will be the medical mecca of the world to a degree not thought of now. The nations of the earth are coming to America for medical training as we once went to Europe.

SMA TO HAVE NEW HOUSING IN BIRMINGHAM

The Southern Medical Association now has plans to build a home for this great organization. It is fitting that this home be in Birmingham, a great Southern city which has been its headquarters over the years. Dr. Seale Harris was the embodiment of the Southern across the years.

Dr. and Mrs. M. Y. Dabney and Mr. C. P. Loranz have played no less important parts in the history of the Southern. The Southern Medical for scientific papers and medical fellowship is outstanding around the world. The Southern States with their both young and old medical schools are on the way to being the medical mecca of the world. The spirit of Sims, Harris, Gorgas, Evans, Underwood, and Matas continues to grow. It is timely and most fitting at this time that we erect a home for the Southern that will be in keeping with the service that it renders.

MID-SOUTH PROGRAM PLANNING

Several weeks ago the executive committee of the Mid-South Postgraduate Medcal Assembly held a meeting in Memphis looking forward to the meeting for next year. Dr. Harwell Wilson, chairman of the program committee, is bringing honor and distinction to Memphis and the mid-South in his outstanding work as a surgeon. He has fine ideas about the program which we shall have in Memphis next year.

ANNUAL LUNCHEON

The Fifty Year Club will have its annual luncheon at the Buena Vista Hotel on Tuesday, May 14, at 12:30 in the Sun Room. This year Dr. Lawrence W. Long of Jackson will be the host. Our fifty year men, now about sixty-five strong in number, will be very grateful to Dr. Long for his fine jesture. Dr. W. H. Frizell is president of the Fifty Year Club and Dr. Lampton Crawford vice-president.

Be sure to visit the exhibitors. They help no little in making the state meeting what it is. They have a noble part in aiding the work of the doctors.

Be sure to see J. A. Majors for medical books while at the state meeting. If this company does not have the book you want it will get it for you. Dr. Majors is a native of Mississippi, Booneville, in fact. He is one of the noblest of the tribe. At his booth you will want to secure a copy of the *Soul of the Surgeon* by Dr. Rudolph Matas.

STORM WRECKS SANATORIUM BUILDING HOUSING NEGRO PATIENTS

Quite a serious storm hit the Sanatorium April 4. The section housing 200 colored patients was hit the hardest. Twenty-five people required major operations, and about fifty suffered minor injuries. The spirit, the devotion to duty and the efficiency of the entire staff was such that every citizen in the state should feel a surge of pride in this great institution. Every member of the staff—nurses, doctors, and helpers—was on the job at once. Some worked for 48 hours without more than a few minutes break. Even Dr. Boswell put in thirty hours before calling a halt. The storm struck near midnight, all operations were completed by eight o'clock, and breakfast was served on time at seven. Before night, rooms were in order and patients moved to comfortable quarters. We would pay tribute to the efficiency and valor of the staff at this great institution. Dr. Boswell and his institution are known around the world and Mississippi is known far and wide through this institution. Congratulations, Dr. Boswell, to you and your staff!

HOSPITAL WEEK

The Rotary News Letter from Truman Lewis, superintendent of the Hospital for Crippled Adults, Memphis, carried much interesting news about this unique hospital and, in addition, other interesting hospital facts:

Seven thousand hospitals in the United States cared for 21,000,000 patients last year. In the non-profit, short term, general hospitals, the expenses increased 141 per cent in the last ten years. These hospitals spent an average per day cost last year of $24.15 per day. The average days per patient in these hospitals was 7.8 days.

It is estimated that one person out of eight will go to a hospital this year. Ninety-four per cent of the babies are now born in hospitals as compared with 37 per cent only 20 years ago. In the last fifty years, hospitals have changed from terminal care in the main to the best and safest place to add years and to extend years of life.

AMITE-WILKINSON COUNTY SOCIETY

The Amite-Wilkinson County Medical Society held its quarterly meeting at the Field Memorial Community Hospital at Centreville, March 26.

The doctors were accompanied by their wives. An excellent dinner was served by Miss Mary Bowles and her nursing staff.

Out-of-state guests were Dr. and Mrs. Paul Jackson of Clinton, La.

An excellent program was presented by Doctor James Atkinson of Baton Rouge. Dr. Atkinson's subject was "Diagnosis and Treatment of Hiatal Hernias During Pregnancy".

The society is grateful to Dr. Dick Field, Jr., for arranging this excellent program.

ANNOUNCEMENT

Campbell Clinic announces the association of Fred P. Sage, M.D., in the practice of Orthopaedic Surgery, 869 Madison Ave., Memphis, Tenn.

DEATHS

DR. W. MILTON ADAMS

Dr. W. Milton Adams, internationally known plastic surgeon whose restless mind and steady hands constantly sought new ways to creat beauty from scarred and torn flesh, died at 10:30 a.m. April 5 in Methodist Hospital.

Death came to the popular physician despite surgery performed Saturday to alleviate a heart ailment. Dr. Adams, who was 51, had been ill several weeks.

Services were held April 6 in National Funeral Home. Dean William E. Sanders officiated. Burial was in Memorial Park.

Described by a close surgeon-friend as "an artist who could look at a scarred face and visualize how it should be," Dr. Adams was surgeon to internationally known celebrities and the indigent alike.

"He devoted a day each week to charity work," said the surgeon. His colleagues would come to his clinic at 1073 Madison to observe. He was invited to Europe twice last year to talk before surgical assemblies.

Contributing to his stature in the field was his "straightforwardness" in controversial matters among fellow physicians.

"One never had to question which side of the fence he was on," said a friend. "If he thought something was wrong he didn't hesitate to say so, no matter whose toes he stepped on."

He was a man who enjoyed classical music and astronomy without being "highbrow." He enjoyed occasional jaunts to Horseshoe Lake to fish but gave them up in recent years under the pressure of other matters. He lived at 689 East Drive.

A devoted father of four, he once turned his talent with plastics into the creation of a model train layout which friends said "far surpassed" anything ever seen in train shops.

Dr. Adams was born in Ripley, Miss., and received his medical degree from Tulane in 1930. He had limited his practice to plastic surgery since 1935.

He had been chief of staff at Methodist Hospital and chief of the departmen tof plastic surgery at John Gaston Hospital, Baptist Hospital, Methodist Hospital, Memphis Eye, Ear, Nose and Throat Hospital, St. Joseph Hospital and Le Bonheur Children's Hospital.

He was head of the plastic surgery department at the University of Tennessee and a consulting plastic surgeon at Kennedy Veterans Hospital.

He was Man of the Year of Kappa Sigma Fraternity in 1945.

He was president of the American Society of Plastic and Reconstructive Surgery in 1953-54; founder and director of the Memphis Cleft Lip and Cleft Palate Center; president of the Tennessee Society of Plastic Surgeons in 1955; associate editor of the *Journal of the American Society of Plastic and Reconstructive Surgery* for the last three years, chairman of the American Board of Plastic Surgery in 1956-57.

He was a Methodist, a Mason, a Rotarian and a member of the Memphis Country Club.

He leaves his wife, Mrs. Catherine Taylor Adams; two sons, William Milton Adams, Jr., and Robert Franklin Adams of Memphis; two daughters, Ann Taylor Adams and Catherine Sue Adams of Memphis; his mother, Mrs. Robert Milton Adams of Memphis; two brothers, Dr. Lorenzo H. Adams of Memphis and James Herman Adams of Raymond, Miss., and a sister, Mrs. Victoria Adams Shaffner of Memphis.

DR. G. BITTENBENDER

Dr. G. Bittenbender, professor of anesthesiology at the University of Mississippi Medical Center, died Monday, April 15 in Veterans Administration Hospital, Houston, Texas, of cancer. He was 45 years old.

Highly respected and widely recognized in his profession, Dr. Bittenbender was a Diplomate of the American Board of Anesthesiology, a member of the Board of Governors of the American College of Anesthesiologists, a member of the American Society of Anesthesiologists and of the Society of University Anesthesiologists.

In January of this year, Dr. Bittenbender was elevated to honor membership in the American Society of Anesthesiologists in recognition of his outstanding contributions to anesthesia education and the advancement of the specialty in the South

Until ill health forced his resignation in February, he was chairman of the Section on Anesthesiology of the Southern Medical Association. Dr. Bittenbender was a member of the Mississippi Society of Anesthesiologists, the Mississippi State Medical Association, the American Medical Association and a Diplomate of the Board of Medical Examiners.

He came to Jackson in June, 1955, for the opening of the new University Hospital which he served as director of anesthesiology. Before coming to Mississippi, he was an associate professor of anesthesiology at Baylor Administration Hospital there, chief consultant in anesthesiology for St. Joseph's Hospital and attending anesthesiologist at Texas Children's Hospital. Prior to going to Houston, he had been associate director of anesthesiology at the Charity Hospital of Louisiana in New Orleans where he took his residency training.

Born in Nescopeck, Pa., March 2, 1912, he graduated from the public schools there and received his B.A. and M.D. degrees from New York University. Dr. Bittenbender interned at the University of Rochester-Strong Memorial Hospital and the University of Virginia Hospital. He was a Fellow in Anatomy and in Pathology at Rochester.

A veteran of three years service in World War II, Dr. Bittendender was discharged as a captain in the Medical Corps.

He is survived by his parents, Mr. and Mrs. Edward Bittenbender; a sister, Mrs. Dale Sitler, and two nephews, all of Nescopeck, Pa.

Funeral services were in Nescopeck. Dr. Bittenbender requested that no flowers be sent but that those wishing to do so send gifts to the Anesthesia Memorial Foundation in his name.

DR. A. C. COVINGTON

Services were held April 3 at the First Baptist Church in Marks for Dr. A. C. Covington, retired physician of Batesville who died at his home there following a heart attack. He was 72.

Burial was in Marks cemetery.

Dr. Covington, a native of Attala, was the son of the late Mr. and Mrs. Allen Covington of the Pierce Chapel community. He was married in 1906 to Miss Willie Davis Adams, also of Attala County. He had made his home in Batesville for many years and had been active in church and civic affairs. He was a Baptist.

Besides his wife, he leaves a son, Ivan C. Covington of Oakland and a daughter, Mrs. Waldo Eubanks of Marks; three half sisters, Mrs. Miller, Pascagoula; Mrs. Jones, Clarksdale; and Mrs. Ricketts, Hattiesburg; a half brother, Asa Covington, Ackerman.

DR. LEON ELLIS

Services for Dr. Leon C. Ellis, lifelong resident of Lowndes County, were held April 5 at Gunter Funeral Home in Columbus.

Doctor Ellis, who was 70, died at Doster Hospital in Columbus after suffering a stroke.

He had practiced medicine in Lowndes County since the end of World War I. He served overseas in that war as a medical officer.

He leaves his wife; two daughters, Mrs. Garvin Nolan of Chattanooga and Mrs. John Webb of Columbus; six sons, Gillman Ellis, Leon Lytle 'Billy' Ellis, Dr. Bernard A. Ellis, and Pat Ellis, all of Columbus, Dr. Donald Ellis of Fontana, Calif., and Nimrod Ellis of Orlando, Florida.

DR. J. A. McDEVITT

Dr. James A. McDevitt, 82, of Shubuta, who died in the Otis Clinic in Laurel April 1, was buried in the Shubuta cemetery. Rites were held at the Shubuta Methodist church.

Born in Paulding, Dr. McDevitt had been practicing medicine in Shubuta for 50 years. He was a member of the Methodist church.

Survivors are his widow; one daughter, Dr. Ellen McDevitt of New York city; two brothers, J. W. McDevitt of Shubuta, and Dr. John McDevitt of Vossburg; and a sister, Mrs. James Weaver of Quitman.

DR. A. C. KIMBRIEL

Dr. Albert Carter Kimbriel, Drew physician, died April 10 at the Baptist Hospital in Memphis. He was 69.

Services were held Thursday morning at the Drew Methodist Church. Dr. Davis R. Grant officiated, assisted by the Rev. A. D. Lewis.

Burial was in the Drew Cemetery, with Thweatt Funeral Home in charge.

Dr. Kimbriel, who was 69, was born in Webster County. After practicing for six years at Boyer, Miss., near Indianola, he moved to Drew in 1917 and has practiced there for the past 40 years. He was a member of the Drew Baptist Church.

He leaves his wife; two daughters, Mrs. Frances Kimbriel Showers of Drew and Mrs. Mary Kimbriel Wiggins of Cleveland; a son, Dr. Albert Carter Kimbriel Jr. of Drew and four sisters: Mrs. W. H. Curry of Eupora, Mrs. W. L. Wilbanks of Memphis, Mrs. Bell Cargile of Birmingham, and Mrs. Nathan Wise of Greenville.

The Mississippi Doctor

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W. H. Anderson, M.D., Editor-in-Chief
Mildred P. Anderson, Assistant Editor

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